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The Architects' JOURNAL for March 17, 1955

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THE ARCHITECTS' JOURNAL

standard contents

every issue does not necessarily contain all these contents but they are the regular features which continually recur

NEWS and COMMENT
Diary
News
Astragal's Notes and Topics
Letters
Societies and Institutions
TECHNICAL SECTION
Information Sheets
Information Centre
Current Technique
Questions and Answers
Prices
The Industry
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Architectural Appointments Wanted and Vacant

No. 3133] [VOL. 121
THE ARCHITECTURAL PRESS
9, 11 *and* 13, *Queen Anne's Gate, Westminster, S.W.1.* *'Phone: Whitehall 0611*

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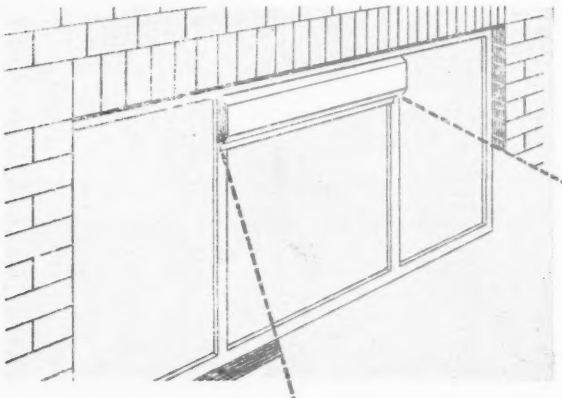
★ A glossary of abbreviations of Government Departments and Societies and Committees of all kinds, together with their full address and telephone numbers. The glossary is published in two parts—A to Ie one week, Ig to Z the next. In all cases where the town is not mentioned the word LONDON is implicit in the address.

IGE	Institution of Gas Engineers. 17, Grosvenor Crescent, S.W.1.	Sloane 8266
IHVE	Institution of Heating and Ventilating Engineers. 49, Cadogan Square.	Sloane 1601/3158
IIBDID	Incorporated Institute of British Decorators and Interior Designers. Drayton House, Gordon Street, W.C.1.	Euston 2450
ILA	Institute of Landscape Architects. 12, Gower Street, W.C.1.	Museum 1783
I of Arb	Institute of Arbitrators. 35/37, Hastings House, 10, Norfolk Street, Strand, W.C.2.	Temple Bar 4071
IOB	Institute of Builders. 48, Bedford Square, W.C.1.	Museum 7197/5176
IQS	Institute of Quantity Surveyors, 98, Gloucester Place, W.1.	Welbeck 1859
IR	Institute of Refrigeration. Dalmeny House, Monument Street, E.C.3.	Avenue 6851
IRA	Institute of Registered Architects. 47, Victoria Street, S.W.1.	Abbey 6172
ISE	Institution of Structural Engineers. 11, Upper Belgrave Street, S.W.1.	Sloane 7128
LDA	Lead Development Association. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
LMBA	London Master Builders' Association. 47, Bedford Square, W.C.1.	Museum 3891
LSPC	Lead Sheet and Pipe Council. Eagle House, Jermyn Street, S.W.1.	Whitehall 7264/4175
MARS	Modern Architectural Research Group (English Branch of CIAM). Secretary: Trevor Dannatt, 6, Fitzroy Square, W.1.	Euston 7171
MOA	Ministry of Agriculture and Fisheries. 55, Whitehall, S.W.1.	Whitehall 3400
MOE	Ministry of Education. Curzon Street House, Curzon Street, W.1.	Mayfair 9400
MOH	Ministry of Health. 23, Savile Row, W.1.	Regent 8411
MOHLG	Ministry of Housing and Local Government. Whitehall, S.W.1.	Whitehall 4300
MOLNS	Ministry of Labour and National Service. 8, St. James' Square, S.W.1.	Whitehall 6200
MOS	Ministry of Supply. Shell Mex House, Victoria Embankment, W.C.	Gerrard 6933
MOT	Ministry of Transport. Berkeley Square House, Berkeley Square, W.1.	Mayfair 9494
MOW	Ministry of Works. Lambeth Bridge House, S.E.1.	Reliance 7611
NAMMC	Natural Asphalte Mine-Owners and Manufacturers Council. 94-98, Petty France, S.W.1.	Abbey 1010
NAS	National Association of Shopfitters. 9, Victoria Street, S.W.1.	Abbey 4813
NBR	National Buildings Record. 31, Chester Terrace, Regent's Park, N.W.1.	Welbeck 0619
NCBMP	National Council of Building Material Producers. 10 Storey's Gate, S.W.1.	Abbey 5111
NFBTE	National Federation of Building Trades Employers. 82, New Cavendish Street, W.1.	Langham 4041/4054
NFBTO	National Federation of Building Trades Operatives. Federal House, Cedars Road, Clapham, S.W.4.	Macaulay 4451
NFHS	National Federation of Housing Societies. 13, Suffolk St., S.W.1.	Whitehall 1693
NHBRC	National House Builders Registration Council. 82, New Cavendish Street, W.1.	Langham 4341
NPL	National Physical Laboratory. Head Office, Teddington.	Molesey 1380
NSA	National Sawmilling Association. 15, New Bridge Street, E.C.4.	City 1476
NSAS	National Smoke Abatement Society. Chandos House, Buckingham Gate, S.W.1.	Abbey 1359
NT	National Trust for Places of Historic Interest or Natural Beauty. 42, Queen Anne's Gate, S.W.1.	Whitehall 0211
PEP	Political and Economic Planning. 16, Queen Anne's Gate, S.W.1.	Whitehall 7245
RCA	Reinforced Concrete Association. 94, Petty France, S.W.1.	Abbey 4504
RIAS	Royal Incorporation of Architects in Scotland. 15, Rutland Square, Edinburgh.	Fountainbridge 7631
RIBA	Royal Institute of British Architects. 66, Portland Place, W.1.	Langham 5721
RICS	Royal Institution of Chartered Surveyors. 12, Great George St., S.W.1.	Whitehall 5322/9242
RFAC	Royal Fine Art Commission. 22A, Queen Anne's Gate, S.W.1.	Whitehall 3935
RS	Royal Society. Burlington House, Piccadilly, W.1.	Regent 3335
RSA	Royal Society of Arts. 6, John Adam Street, W.C.2.	Trafalgar 2366
RSI	Royal Sanitary Institute. 90, Buckingham Palace Road, S.W.1.	Sloane 5134
RIB	Rural Industries Bureau. 35, Camp Road Wimbledon, S.W.19.	Wimbledon 5101
SBPM	Society of British Paint Manufacturers. Grosvenor Gardens House, Grosvenor Gardens, S.W.1.	Victoria 2186
SCR	Society for Cultural Relations with the USSR. 14, Kensington Square, London, W.8.	Western 1571
SE	Society of Engineers. 17, Victoria Street, Westminster, S.W.1.	Abbey 7244
SFMA	School Furniture Manufacturers' Association. 30, Cornhill, London, E.C.3.	Mansion House 3921
SIA	Structural Insulation Association. 32, Queen Anne Street, W.1.	Langham 7616
SNHTPC	Scottish National Housing. Town Planning Council. Hon. Sec., Robert Pollock, Town Clerk, Rutherglen.	
SPAB	Society for the Protection of Ancient Buildings. 55, Great Ormond Street, W.C.1.	Holborn 2646
TCPA	Town and Country Planning Association. 28, King Street, Covent Garden, W.C.2.	Temple Bar 5006
TDA	Timber Development Association. 21, College Hill, E.C.4.	City 4771
TPI	Town Planning Institute. 18, Ashley Place, S.W.1.	Victoria 8815
TTF	Timber Trades Federation. 75, Cannon Street, E.C.4.	City 5051
WDC	War Damage Commission. 6, Carlton House Terrace, S.W.1.	Whitehall 4341
ZDA	Zinc Development Association. Lincoln House, Turl Street, Oxford.	Oxford 47988



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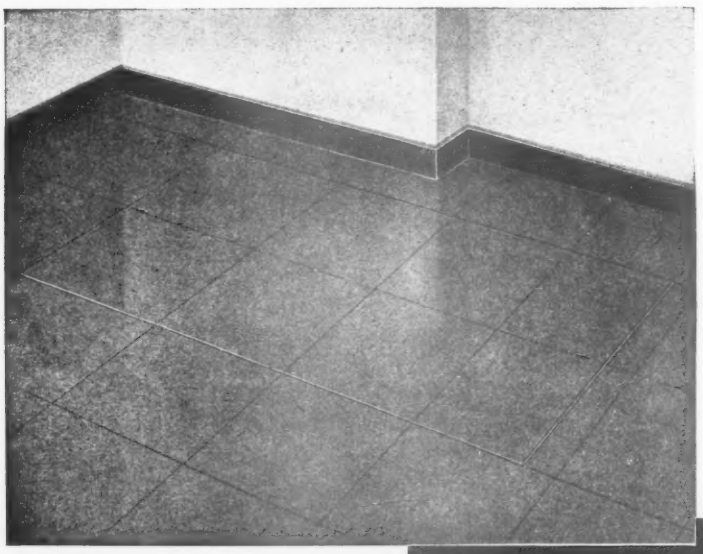

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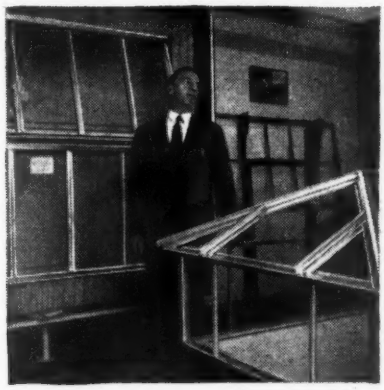

Monarch of all he surveys

Jim Butler's 'kingdom' is the Bristol area. His 'palace' is the Williams & Williams showroom in the M.A.C. building at Colston Street, Bristol. Being a Yorkshireman from Leeds, he's normally a quiet man—but one time he speaks right up is when he's showing it off to his customers! He gets talkative, too, on the subject of his representatives, draughtsmen, estimators and window fixers, all of whom co-operate with him in keeping customers happy throughout the Bristol area. But we haven't introduced him to you formally yet, have we? Well—shake hands with Edward Paul Butler, Williams & Williams Area Manager for Bristol. And now that you know him, why not ask him to meet you at the Colston Street Showroom and let him take you round? He'll enjoy putting on his peaked cap to give you a Guided Tour—and you might get something useful out of it too!

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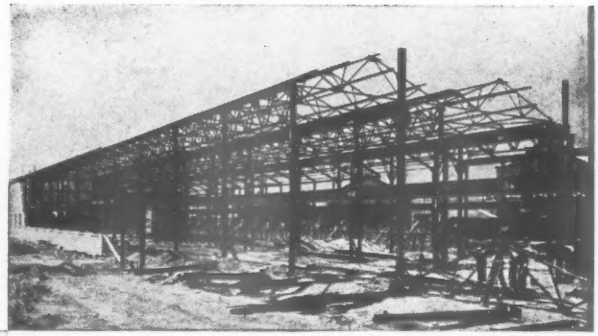
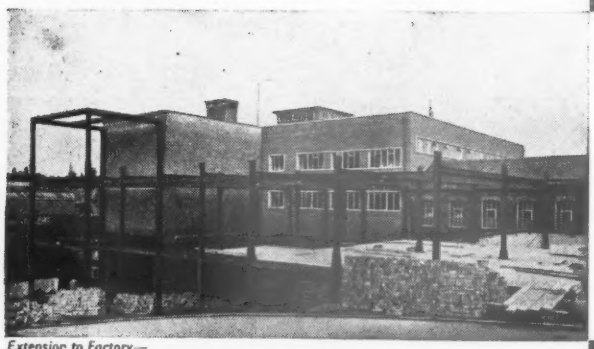


Stores building in course of erection for National Gas & Oil Engines Limited.



Extension to Factory—
Messrs. F. E. Fox & Son Limited, Batley. Biscuit Manufacturers.
Architects: Smith & Curry, Heckmondwike.

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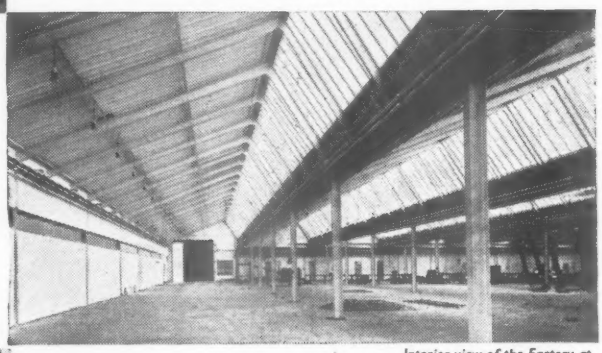
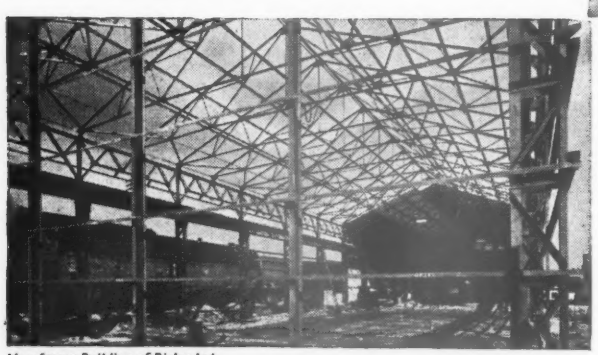


Interior view of the Factory at Barnsley, Messrs. Brook Motors Ltd.



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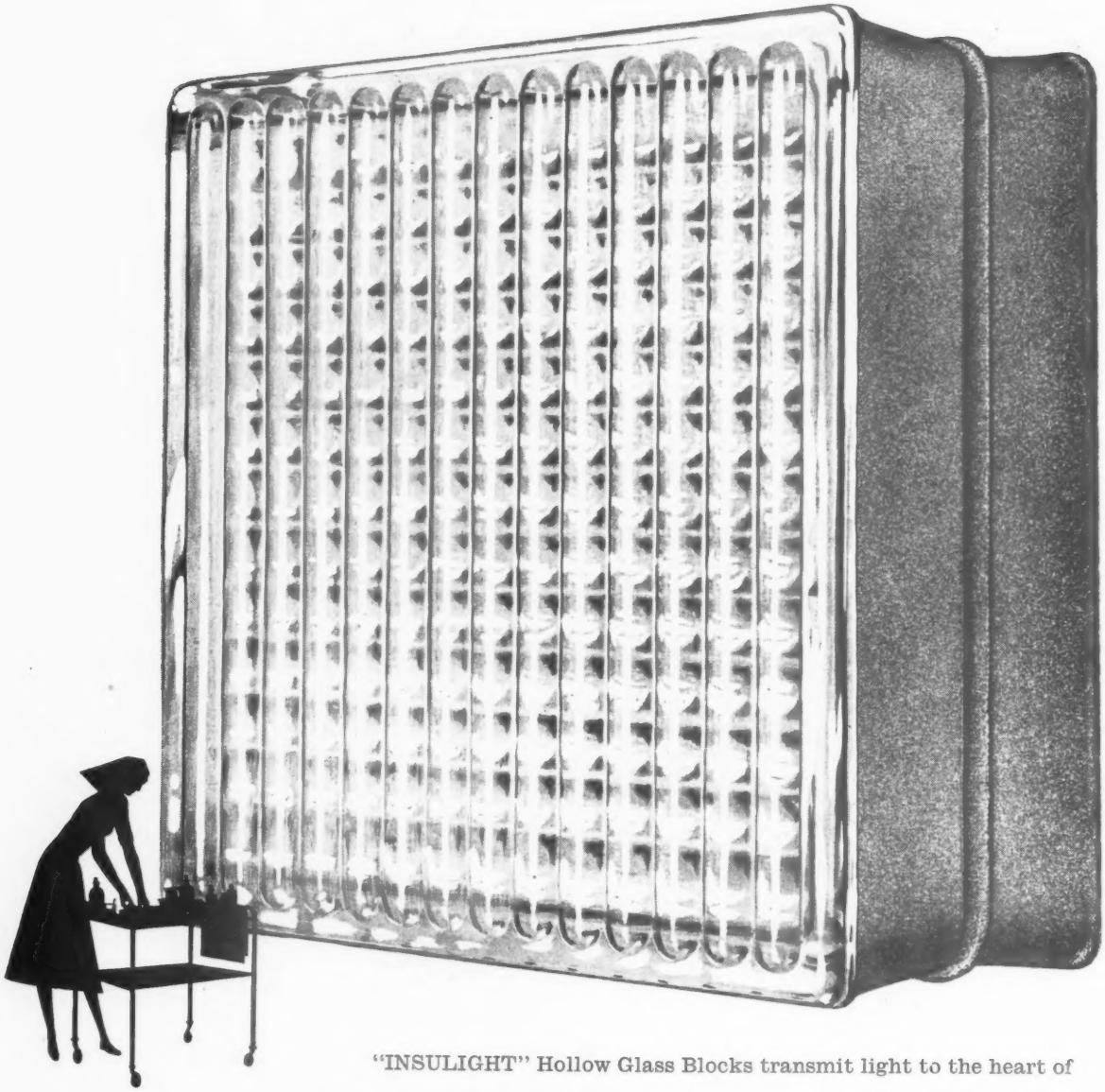

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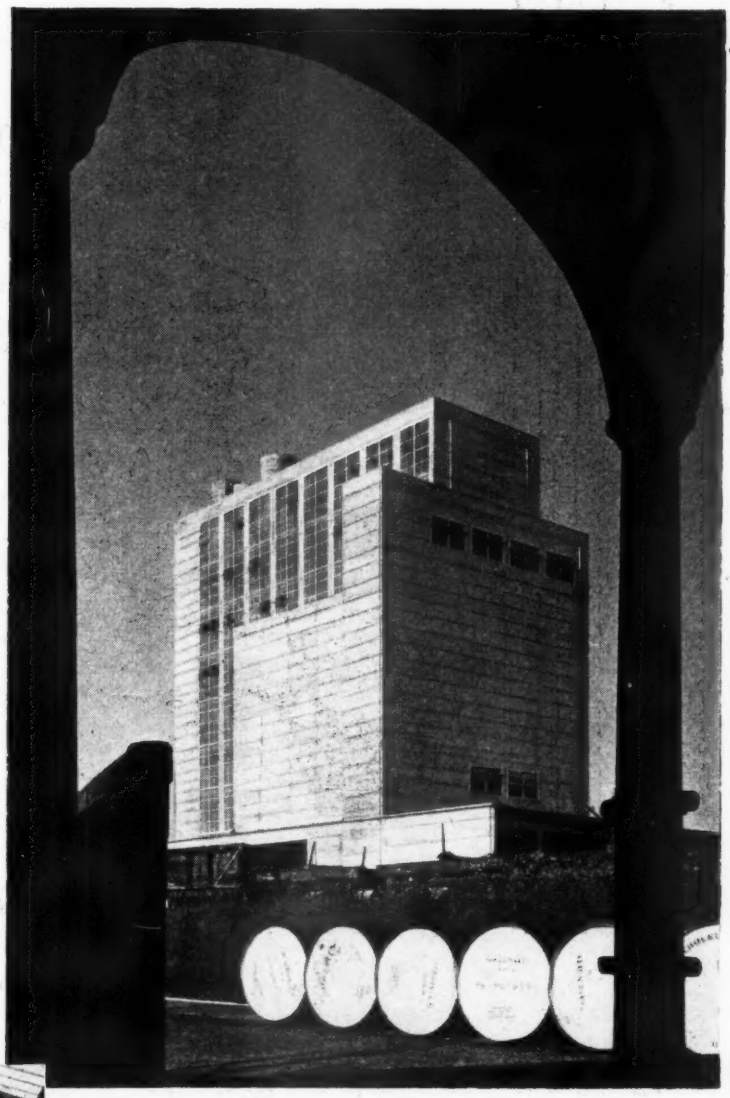

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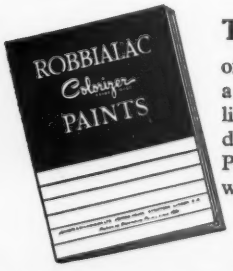

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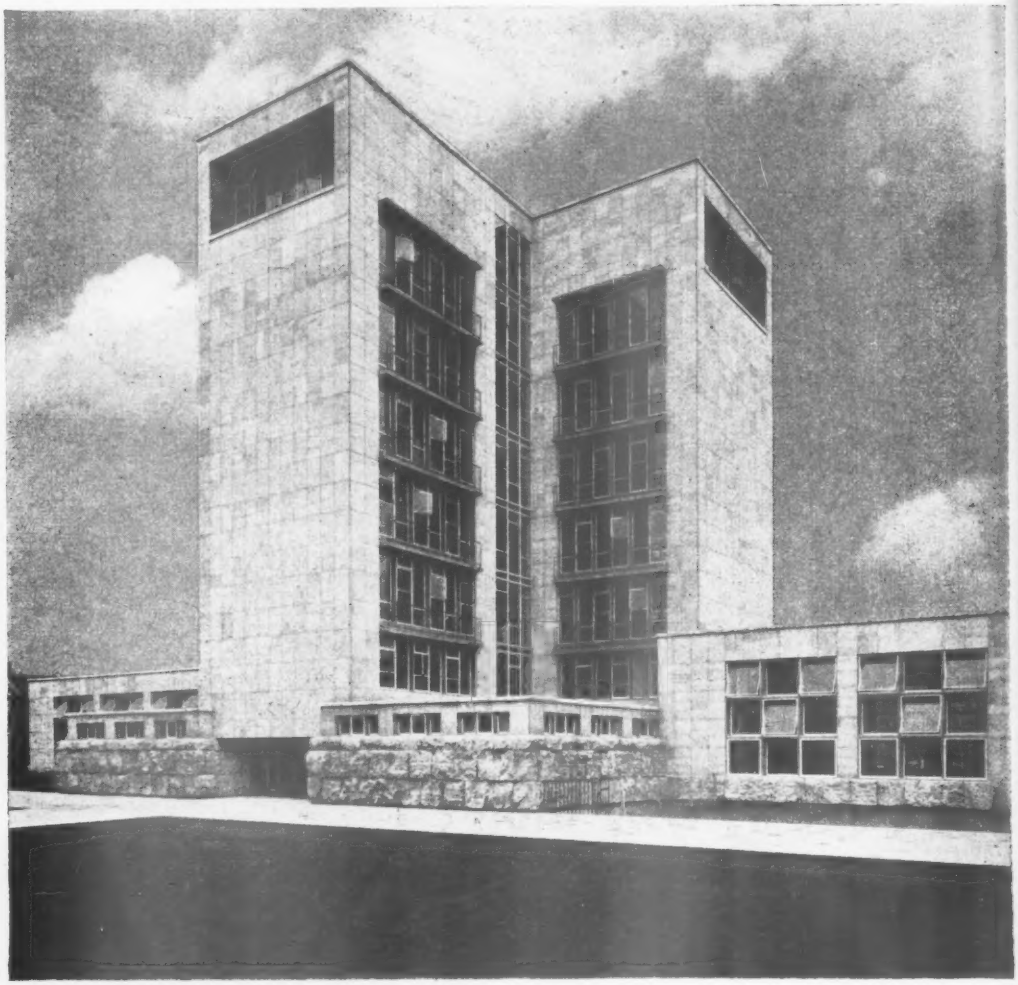

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East Ham Borough Council

Architect: ***George Whitby, M.B.E., F.R.I.B.A.***

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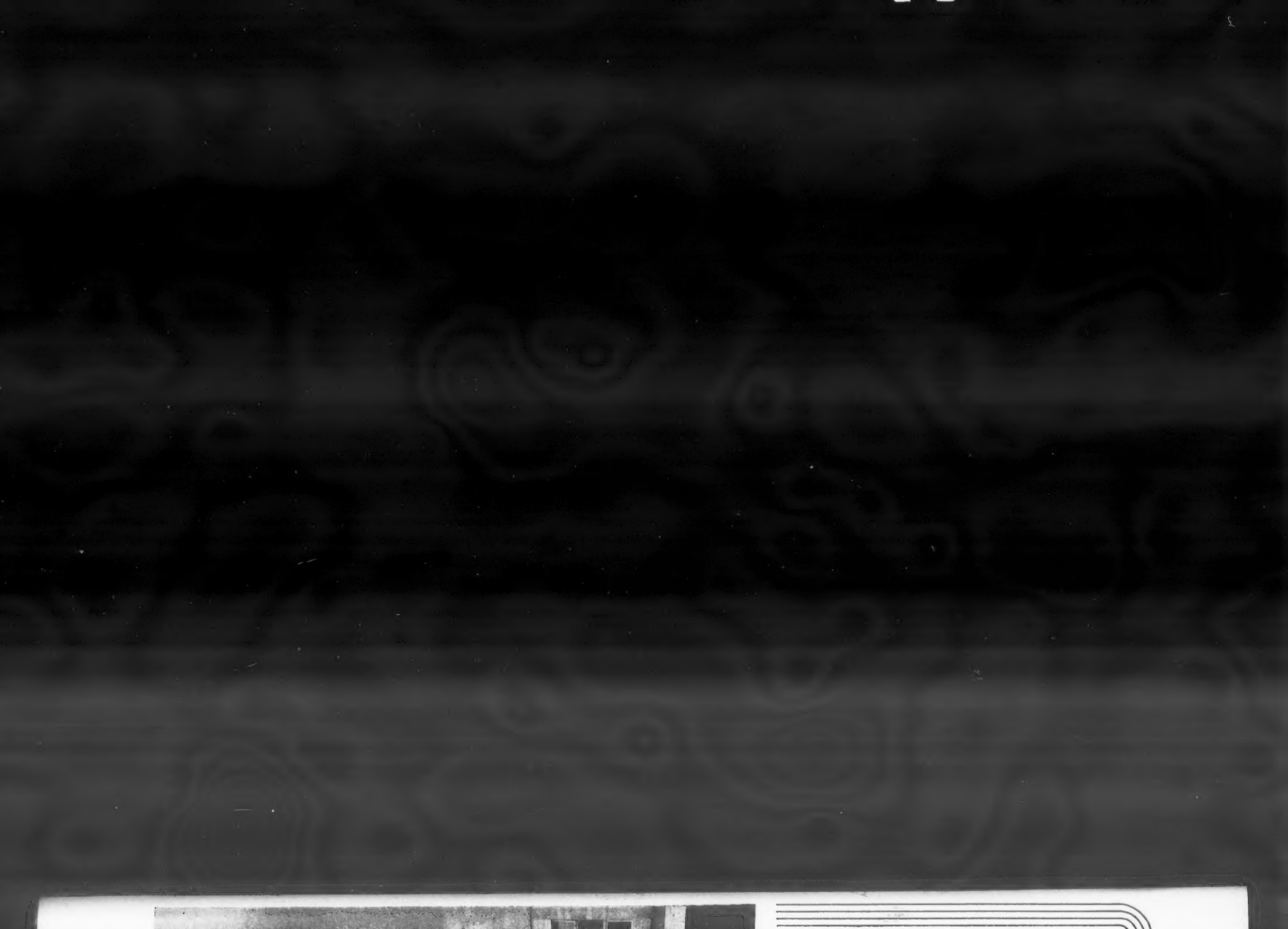

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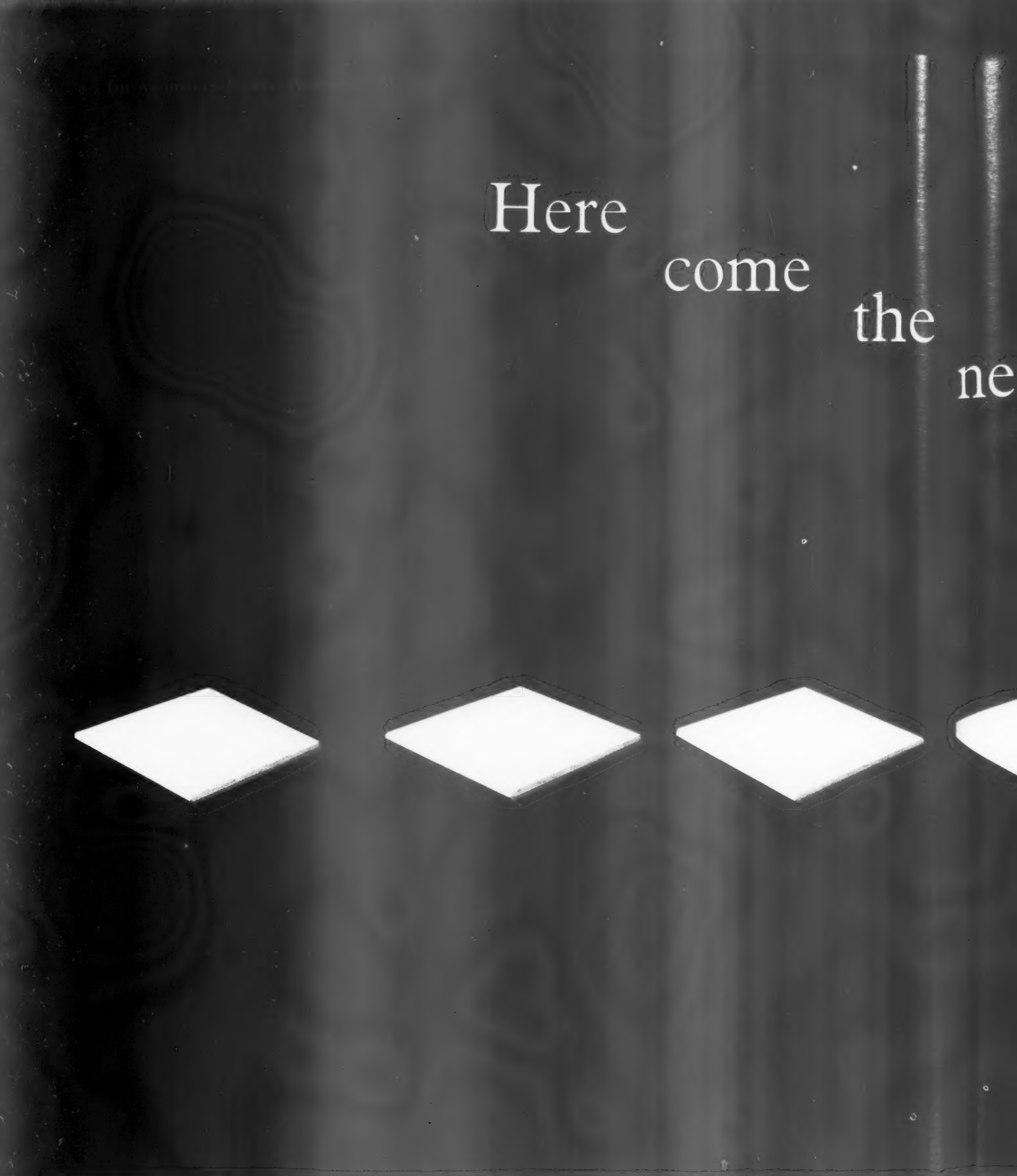

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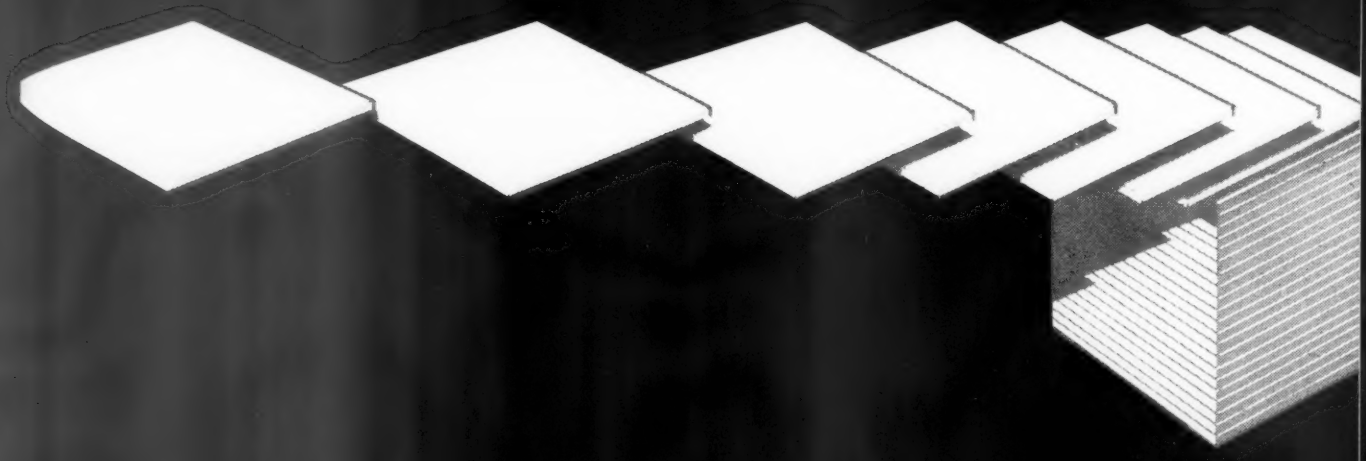

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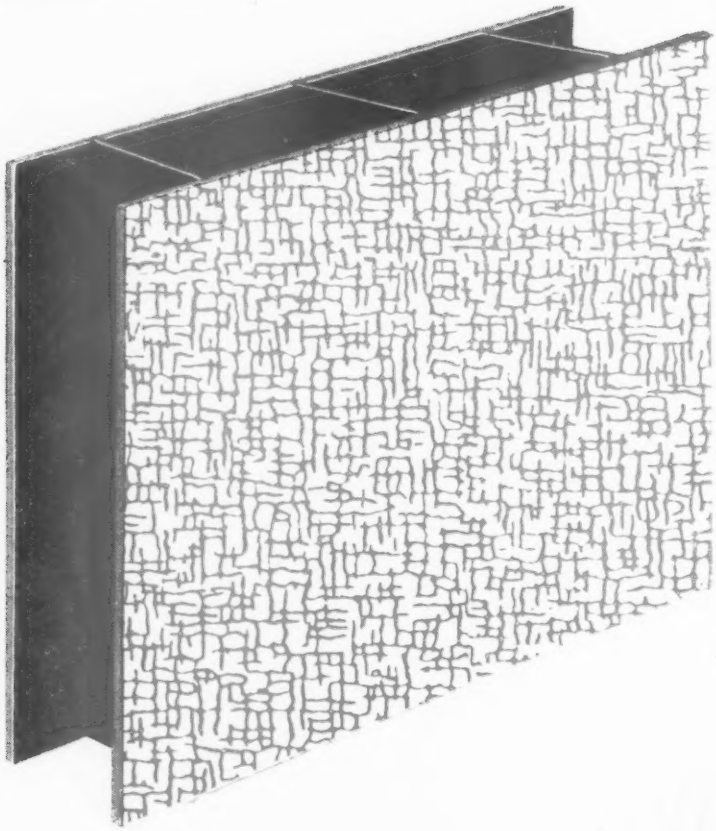

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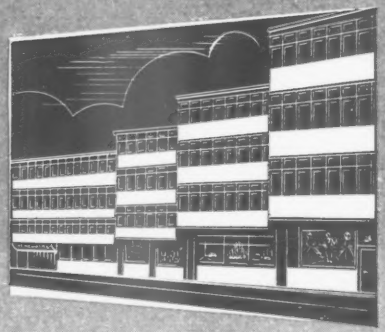

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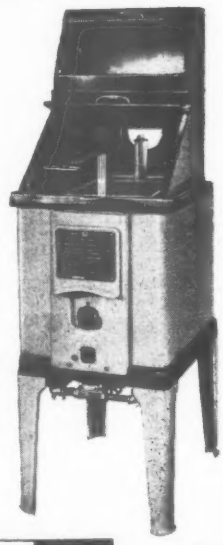

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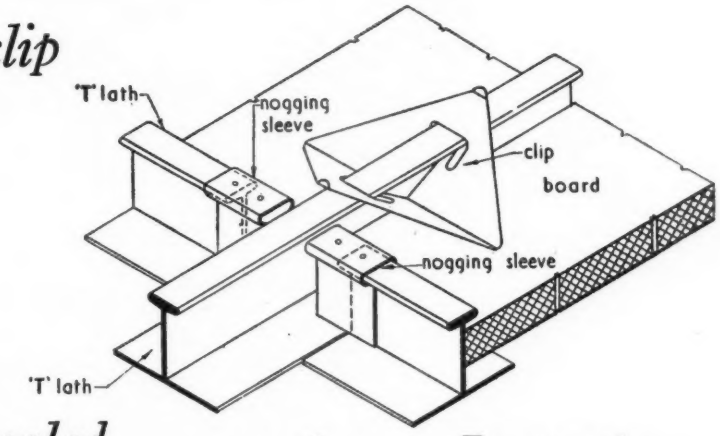

Concealed clip

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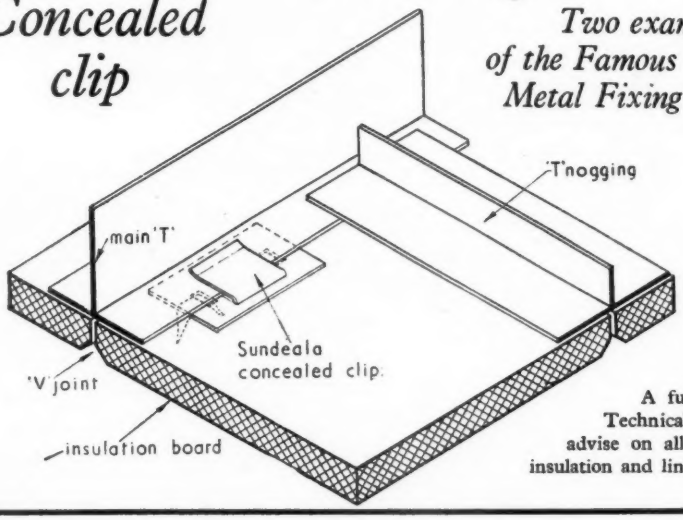

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Newcastle: NORTHUMBRIA HOUSE, PORTLAND TERRACE, 2

Bars IN MODERN OR TRADITIONAL STYLE

NEW COCKTAIL LOUNGE, THE HARE AND HOUNDS HOTEL, WESTONBIRT, GLOS.

The Counter top is in Elm with moulded edges and the front in vertically moulded matchboards of English Cherry. A stainless steel wash-up drainer and ice unit are concealed in the undercountering.

The backfitting consists of the same woods with a Hare and Hounds motif on the central panel flanked by plate glass shelves fixed to bevelled mirror panels.

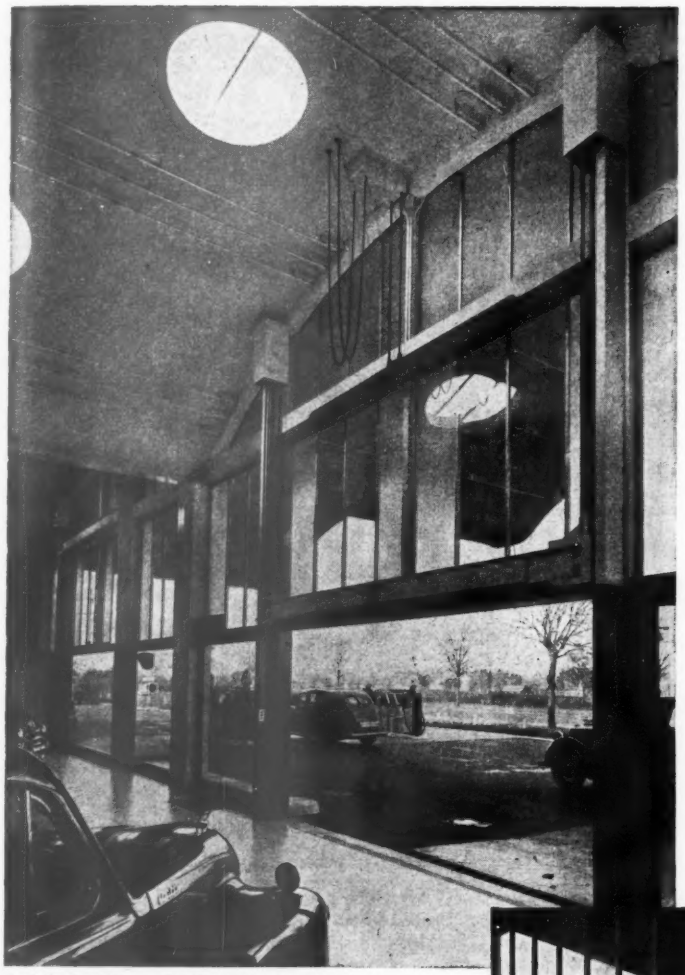
Gaskell Chambers LIMITED

BRITAIN'S BIGGEST BAR FITTERS

Member of the Allied Brewery Traders' Association.

Head Office: DALEX WORKS, COLESHILL STREET, BIRMINGHAM, 4.
London Office: 109-115, BLACKFRIARS ROAD, S.E.1.

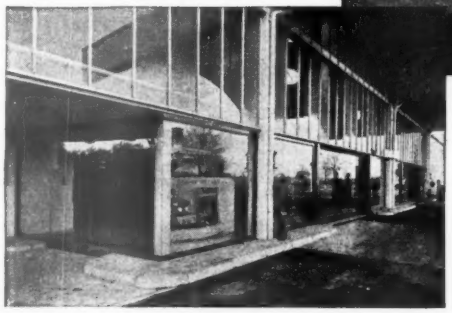
Branches at: Bristol, Cardiff, Hanley, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Portsmouth, Preston, Sheffield, Glasgow, Edinburgh.



The essentials of the modern
MOTOR SHOWROOM–
Good Planning–Full Display Facilities
and easy Movement of cars
–have been successfully combined
in this visual frontage
installed for the Perivale Motors
at Greenford, Middlesex.
Two Armour plate glass Entrances
merge with the large windows to give
an almost uninterrupted view
of the whole Showroom.
Incorporated in its length
are two power operated
lift up sashes each exceeding 16 ft.
which disappear behind the high transome
of alternate clear and obscured
plate glass panels,
allowing free movement of cars
on and off the premises.

Architects: Messrs. Wallis. Gilbert & Partners.

Haskins



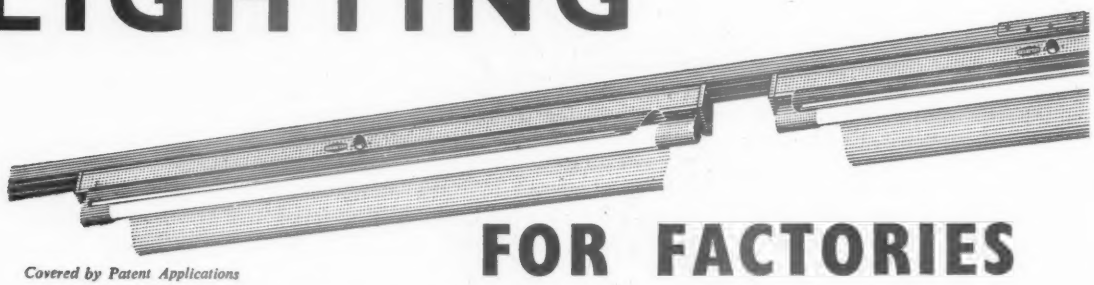
Haskins

E. Pollard & Co Ltd, 159 St John St. London EC1

Tel: CLErkenwell 6701

Showrooms: 299 Oxford St. London W1 · Tel: MAYfair 6703

SHALLOW LIGHTING



Covered by Patent Applications Nos. 20825/54 30248/54

FOR FACTORIES OFFICES AND STORES

Leading Contractors enthusiastically endorse the superiority of the new Ediswan shallow lighting trunking. In addition to the facilities commonly offered by trunking systems it has several unique features including an unobtrusive appearance which allows its use in decorated interiors. And the cost is low.

For all standard Lighting Fittings. Ediswan trunking is robust, easy to handle and to install. It consists of 4½" wide by 1½" deep 18 swg. "Bonderised" and enamelled steel channel in 13ft. lengths. These are coupled together by junction pieces to form a continuous run along which any standard type of lighting fittings (tungsten, fluorescent or mercury discharge) can be positioned as required. Snap-in cover strips are used to seal the trunking between fittings.

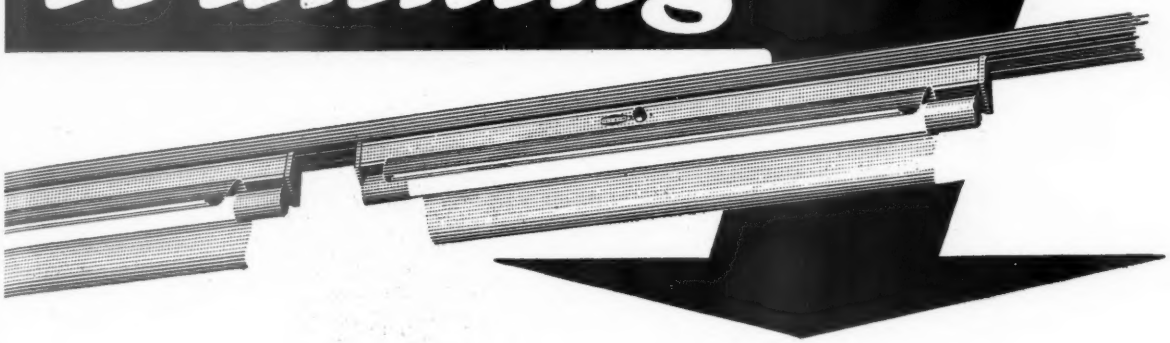
For the support of the lighting fittings there is a carrier plate of unique design, which is secured in any desired position by two bonding screws (these also ensure the low resistance earthing essential for instant start circuits), providing female entry for ¾" conduit.

For other power operated equipment. Lighting fittings, all types of light duty power operated equipment, or socket or conduit outlets from which such equipment can be fed, can be directly attached by use of the carrier plate and standard conduit accessories.

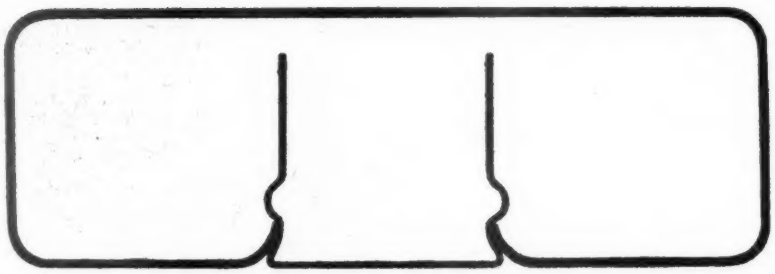
Large enclosed cable ducts—conduit outlets in any direction. The whole of the interior is available for cable, the two large outer ducts taking principal circuits and the middle, the inter-connections between fittings. The dimensions of the trunking also allow for conduit outlets in any direction. The provision of connector blocks makes it simple to alter the layout of lighting or other equipment. A 4-way 2-pole connector block (patent applied for) specially designed for use in trunking can be supplied if required. A unique feature of Ediswan trunking is the space available for handling wiring after the original installation has been completed because the interior walls which create the three separate ducts are part of the cover strip. They are therefore withdrawn when the cover strip is removed and there is ample space for manipulation.

CUTS COSTS *Trunking systems of any type normally show substantial savings due to lower labour costs, fewer suspension points, and the elimination of multiple conduit runs. Ediswan shallow trunking gives additional valuable savings because it is designed for use with standard conduit accessories and suits standard lighting fittings—and the cost of the trunking itself (in steel) is only 3/1d. per foot approx. (in 0.1" extruded aluminium approx. 5/5d. per foot) plus accessories.*

trunking



FULL SIZE SECTION (IN STEEL)



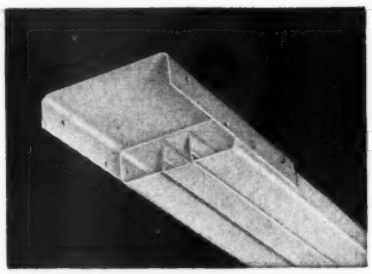
Can be supplied in extruded aluminium in slightly thicker section.

Suspension, Surface Mounting, Recessing. Ediswan shallow trunking is suitable for all normal methods of suspension; for new buildings it may be incorporated in concrete to form a flush surface, or recessed in plaster or acoustic tile ceilings. Because of its smooth, unobtrusive appearance it is particularly suitable for use in Departmental Stores or Offices.

1. *The two larger cable ducts are separated when cover strips are in position. With a cover strip removed there is ample space for handling cable.*
2. *Cover strips snap into position. End caps have three ¾" conduit knock-outs which can be enlarged if required.*
3. *A switch and a B.E.S.A. box with socket outlet indicate the simplicity of adding equipment to the original installation.*

Full details and prices of Ediswan shallow trunking are available from any Ediswan Office and Ediswan Lighting Engineers will gladly co-operate with you in planning your lighting installation

1.



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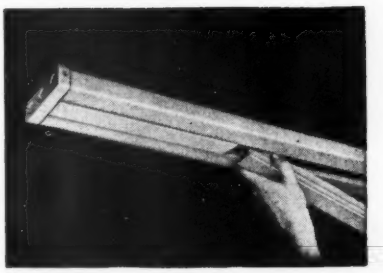

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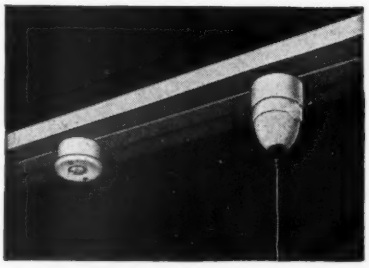


EDISWAN

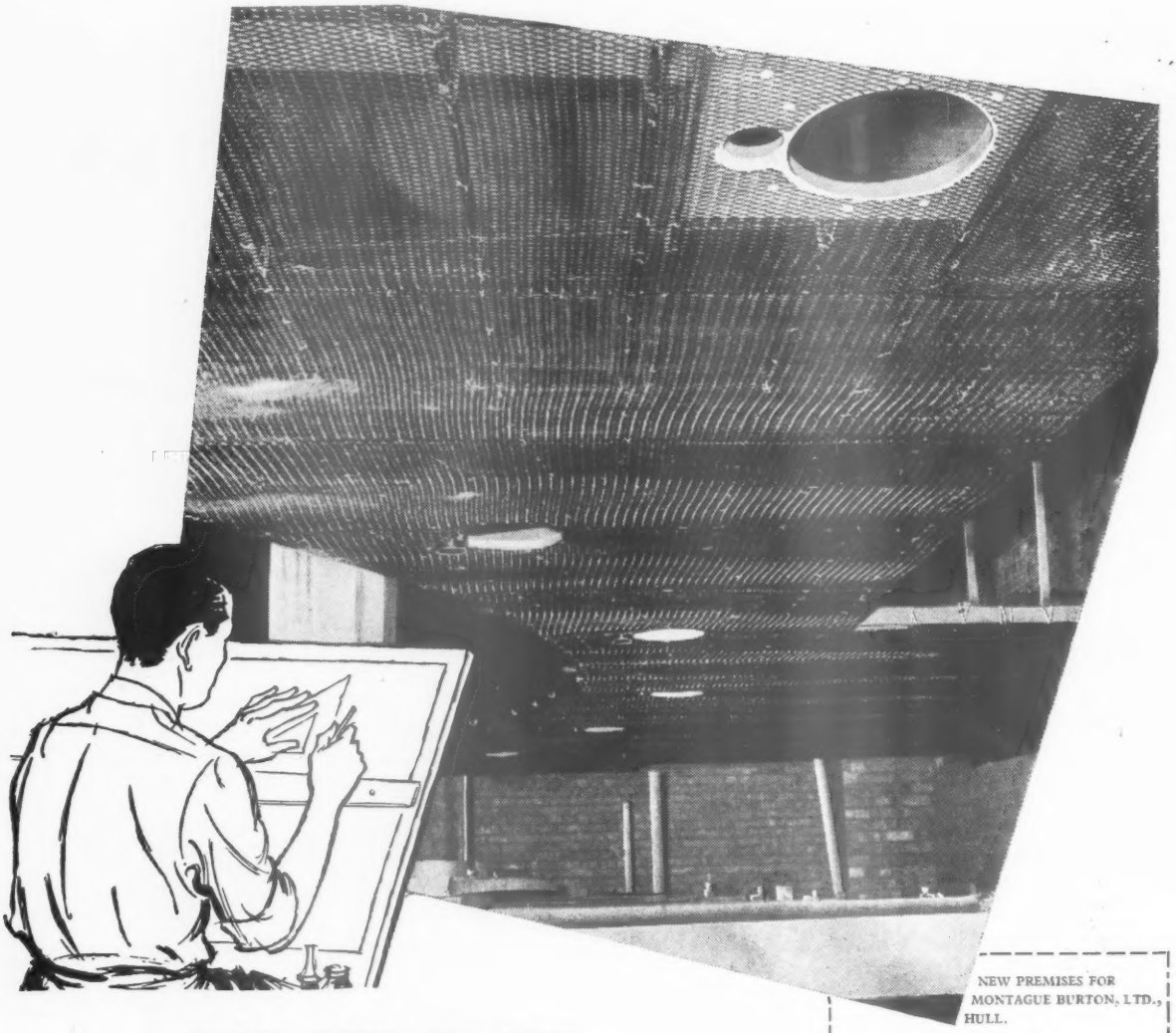
THE EDISON SWAN ELECTRIC CO LTD

155 Charing Cross Road, London, W.C.2

MEMBER OF THE A.E.I. GROUP OF COMPANIES

Telephone: Gerrard 8660. Telegrams: Ediswan, Westcent, London.

LE203



NEW PREMISES FOR MONTAGUE BURTON, LTD., HULL.

"BB" Lathing supplied for suspended ceilings with recessed lights. Architect: Mr. N. Martin, A.R.I.B.A., Staff Architect for Montague Burton, Ltd.; Architect in Charge, Mr. C. Farley, B.Sc. General Contractors for the rebuilding:— Messrs. Spooners, Stoneferry, Hull.

FROM DESK TO SITE—

A COMPLETE PLASTER LATHING SERVICE

A comprehensive service is offered with the "Expamet" range of Expanded Metal Lathings. From a single source you get—the estimate, the design, the lathing and the fixing ready for plastering.

Ideal backgrounds. Expanded Metal Lathings can be used economically as a background for any type of plasterwork. The hundreds of meshes in each square foot form "keys" for the support of the plaster, and the lathings are also a reinforcement imparting a high degree of resistance to cracking. There are four main types available—"BB" Lathing, "Expamet" Lathing, Rib-Lath and "Ribmet", to allow spacings between supports from 12 inches up to 5 feet according to the kind of work to be done.

Can be made to fit anywhere. Expanded Metal Lathings can be readily adapted to any style of background. Flat, arched, domed and vaulted surfaces can be formed with equal ease. The simple arrangement of firring and Expanded Metal can be made to fit anywhere. We shall be pleased to advise you in the choice and use of Expanded Metal for any job you have in mind.

5-PART

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3. Supply of 'backgrounds' for plasterwork (BB Lathing) (Rib-Lath) (Ribmet) (Angle & Casing Beads)
4. A complete fixing service
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Expamet

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THE EXPANDED METAL COMPANY, LTD

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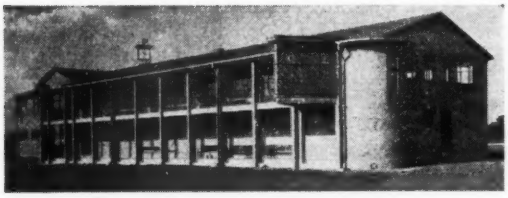
P.O. Box 14, Stranton Works, West Hartlepool. Telephone: Hartlepools 2194

ALSO AT: ABERDEEN · BELFAST · BIRMINGHAM · CARDIFF · DUBLIN · EXETER · GLASGOW · LEEDS · MANCHESTER · PETERBOROUGH

UNIVERSITY COLLEGE HOSPITAL SPORTS CLUB INSTALL THE



HONEYWELL 'AQUATROL' SYSTEM

The Honeywell 'Aquatrol' System controls the heating of this modern sports club. The system maintains a substantially constant space temperature in the building, accommodating any change in outside air temperature. Temperature control point and inside/outside reset ratio can be manually selected at the electronic control panel to provide any temperature level within the span of the system, —20° to +225° F.

THE BASIC 'AQUATROL' SYSTEM

Four simple and robust components maintain the required relationship between flow temperature in the heating circuit and any outside air temperature.

The Outside Air Compensator (a thermostat) is situated on an outer wall.

An Immersion Thermostat measures water temperature in the mixed flow main of the heating circuit.

The Electronic 'Aquatrol' Panel contains components which co-ordinate signals from both thermostats and regulate the action of valve motor control relays.

A Modulating, Motorised, 3-way Valve, located on boiler flow and by-pass, is positioned by the control relays to provide the correct flow temperature as a continuous function of outside air temperature.

HOT WATER SUPPLY

The 'Aquatrol' panel receives signals from an immersion thermostat situated in the secondary flow from the calorifier. The panel then positions a modulating motorised valve on the primary water supply to the calorifier, thus maintaining a substantially constant temperature of water for baths, showers, etc.

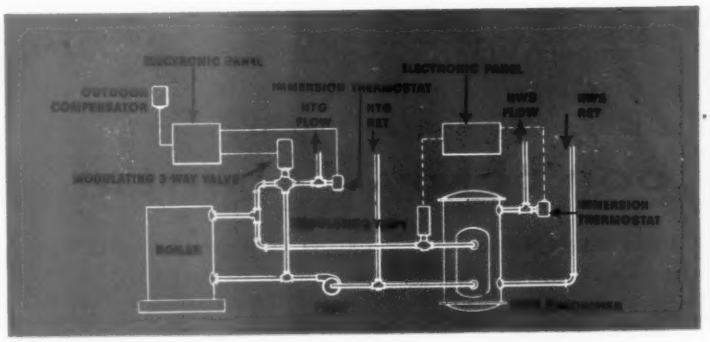
The temperature control point is manually established at the Panel within the span —20° to +225° F.

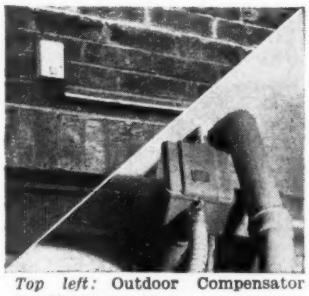
Honeywell-Brown Ltd., 1 Wadsworth Road, Perivale, Greenford, Middlesex. Sales Offices located in the principal cities of Britain and throughout Europe.

With acknowledgements to:

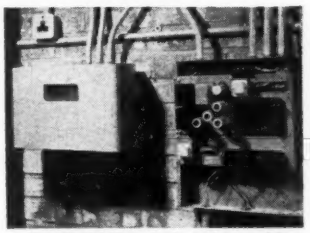
The University College Hospital Medical School authorities; Messrs. Clutton, Chartered Surveyors and Messrs. G. N. Haden & Sons Ltd., Heating and Ventilating Engineers.

Honeywell
BROWN INSTRUMENTS
First in Controls

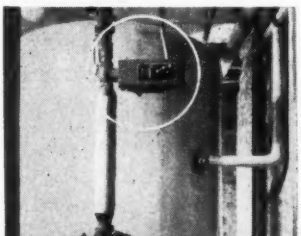




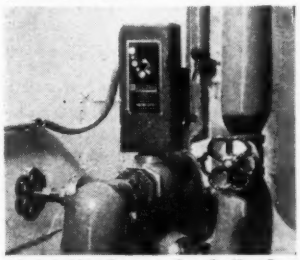
Top left: Outdoor Compensator (northern aspect).
Bottom right: Immersion Thermostat (mixed flow main).



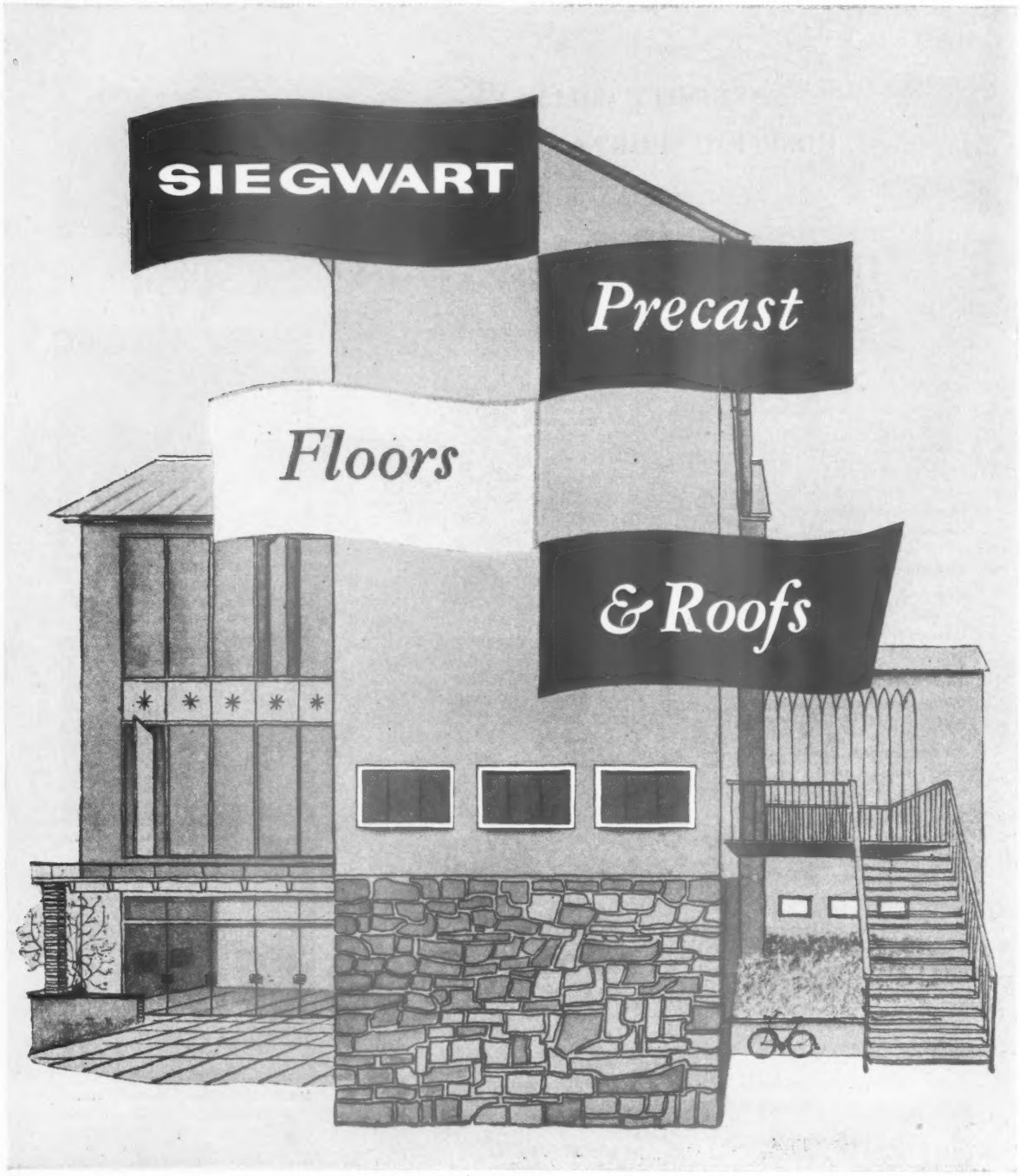
'Aquatrol' Panels (heating and hot water service).



Modulating Valve (hot water service primary supply).



Modulating 3-way valve (boiler flow and by-pass).



SIEGWART FLOOR COMPANY LIMITED

GABLE HOUSE, 40 HIGH STREET, RICKMANSWORTH, HERTFORDSHIRE · RICKMANSWORTH 2268

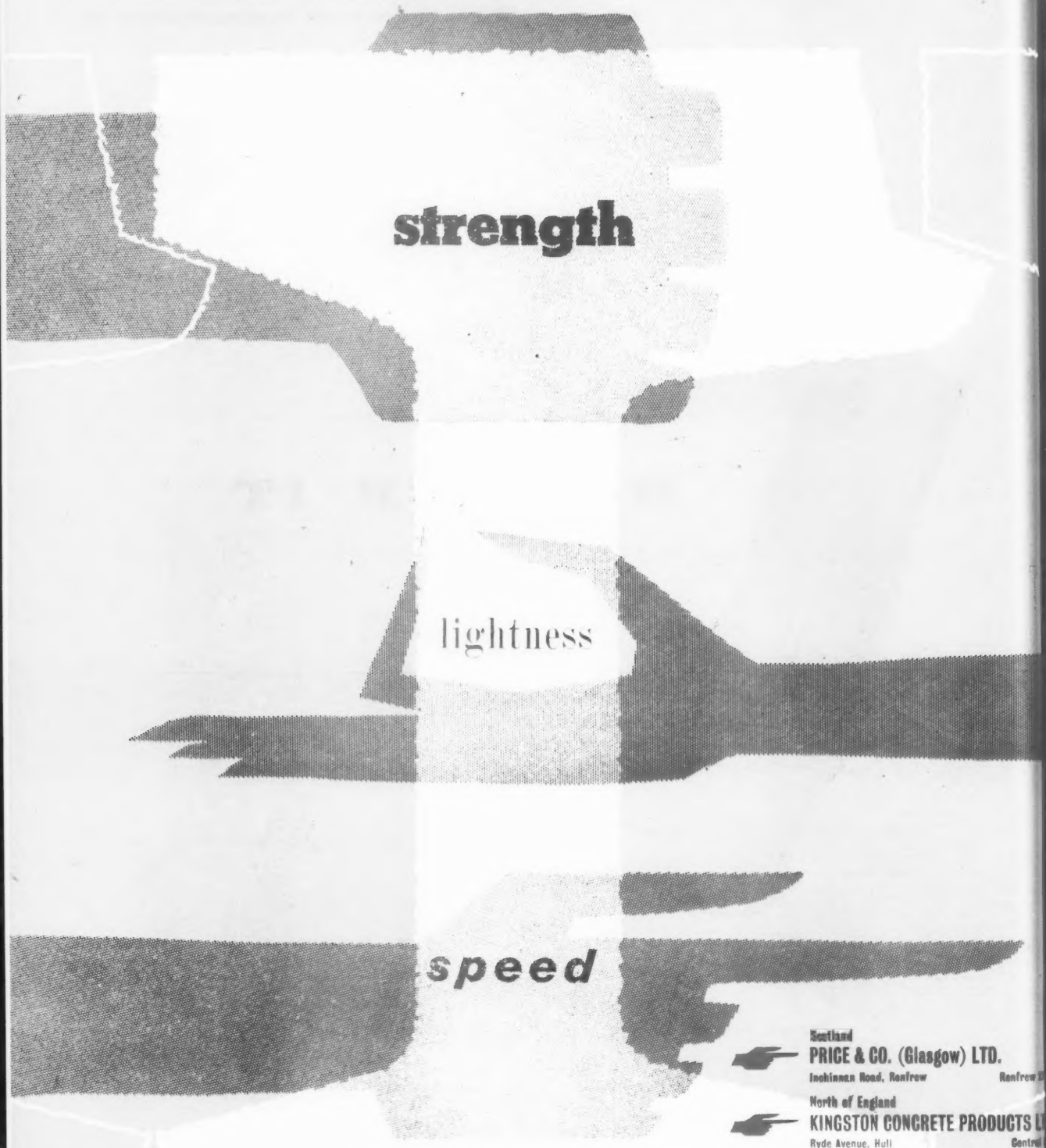
AND AT LEICESTER, BIRMINGHAM, MANCHESTER AND GLASGOW

HAMMER IT

—and you will dispel all doubts about
the strength of a Birmid aluminium alloy gutter.
Although light in weight for easy handling,
Birmid RWG are exceptionally tough—breakages in transit and on site
being almost unknown. All Birmid gutters and fittings
are made as gravity or pressure die-castings
for dimensional accuracy and perfect fitting.
They have excellent weather-resistance, ensuring freedom from rust
stains on stone and brickwork. To save on erection costs,
and for certain long-term value, be sure to specify BIRMID.

BIRMID RAINWATER GOODS

BIRMID WORKS · SMETHWICK 40 · STAFFS



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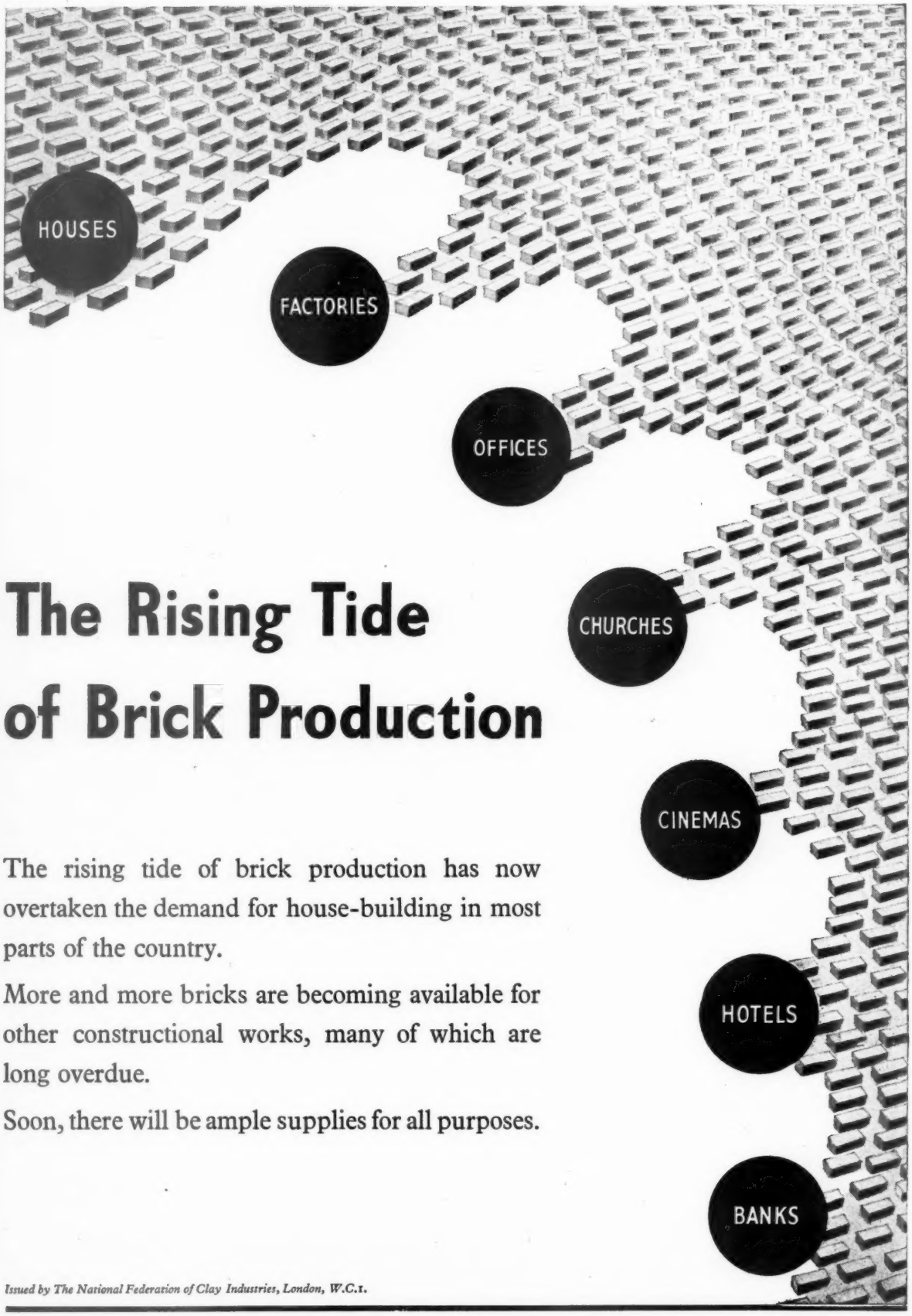
THE RAPID FLOOR COMPANY LIMITED, AFRICA HOUSE, KINGSWAY, LONDON, W.C.2. PHONE: HOLBORN 32



The Rising Tide of Brick Production

The rising tide of brick production has now overtaken the demand for house-building in most parts of the country.

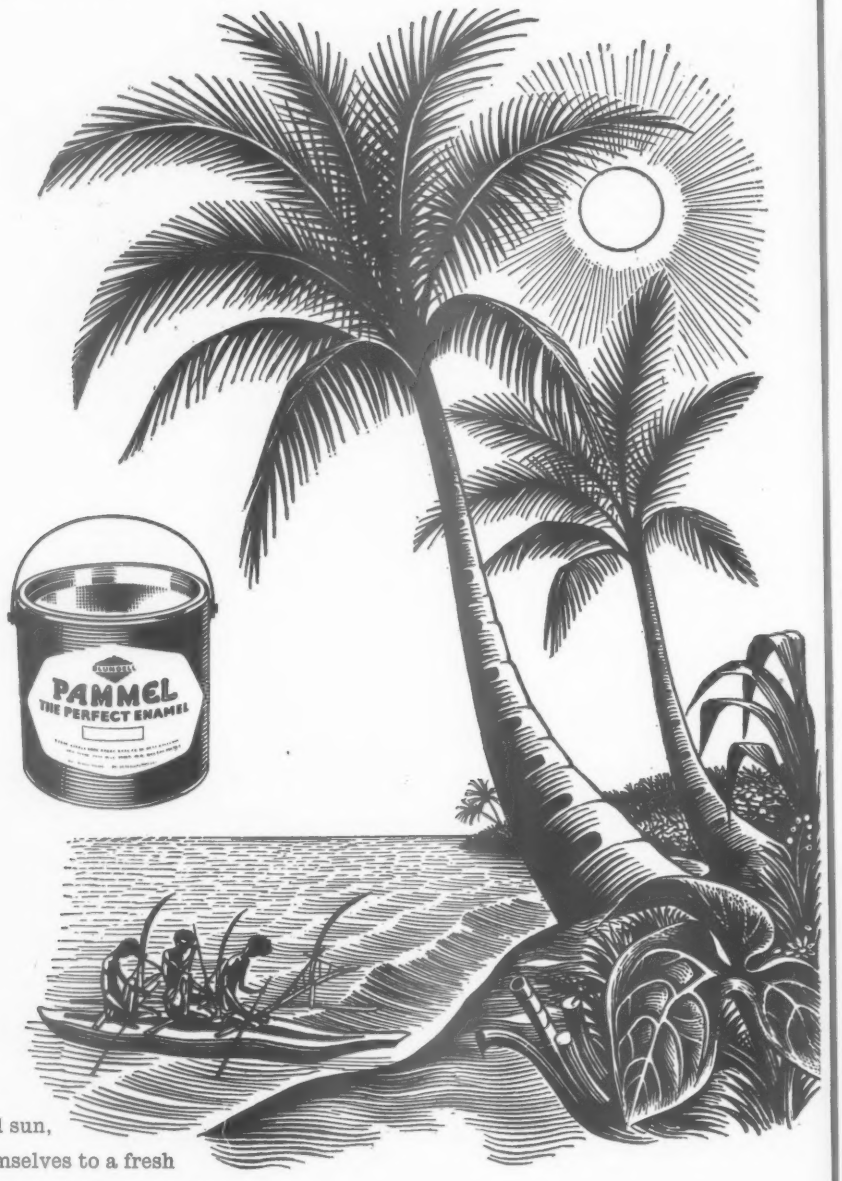
More and more bricks are becoming available for other constructional works, many of which are long overdue.

Soon, there will be ample supplies for all purposes.

Issued by The National Federation of Clay Industries, London, W.C.1.

WATCHING YOUR INTERESTS . . .

We followed Gauguin's example



Far from having escapist desires, however, we took our brushes to the tropics in a spirit of scientific enquiry. On the coast in Malaya stands a Yacht Club building.

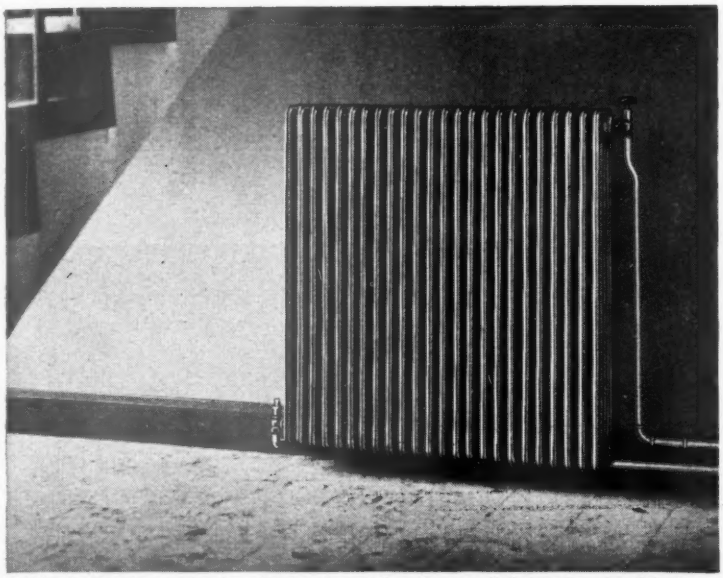
Buffeted as it is by salt laden gales and monsoon rains, and baked by the tropical sun, the owners had long since reconciled themselves to a fresh redecoration every six months. It seemed no paint could take it.

Having a certain parental pride in the virtues of our products, we modestly suggested that PAMMEL, our gloss enamel, should be used on the building. We confess that we were not surprised to find the exterior looking young, healthy and full of fight not a day less than eighteen months later. If a small moral were permissible it might be that though Blundells are not the loudest to shout their claims from the roof-tops, the surfaces which bear their paints will tell the story far more satisfactorily.

We shall be pleased to give you fuller information about PAMMEL — and its notable complementaries, PAMMASTIC the Plastic Emulsion Coating, and PAMMELETTE — Blundell's superfine eggshell enamel.

BLUNDELL PAINTS

For full technical details please write to :
Blundell, Spence & Co. Ltd. 9 Upper Thames St., London, E.C.4. *Makers of paints since* 1811



Gulf 5 column Radiator used on lower landing of one of the stairways at Kidbrooke Secondary School.

LIGHT IN WEIGHT
(Ideal for wall fixing)

EASY TO PAINT, CLEAN & KEEP CLEAN

COST LESS

ECONOMICAL TO FIX

FROSTPROOF

MORE RESPONSIVE TO THERMOSTATIC CONTROL

Gulf long life Radiators are available in a wide range of Column and Wall Panel types, in any length and in curved and angled form. Gulf specialize in producing radiators for unusual and exacting requirements. Gulf are installed throughout the country and in the largest building built since the war.

BALANCED HEAT

Gulf Panel Radiators provide the perfect balance of radiation and convection to ensure the highest standard of heat comfort coupled with efficiency of operation and maximum fuel economy.

An Associate Company supplies: Oil-filled Radiators for Electric (off peak), Gas and Paraffin Operation, Domestic Boilers, Electric Warm Air Heaters, Electric Bed Sheets, Gas and Electric Towel Rails, Room Thermometers and Temperature Controls, Cylinder Jackets and Insulation Materials, "Hurdapta" Fires, Weather-stripping and Draughtproofing.

GULF RADIATORS

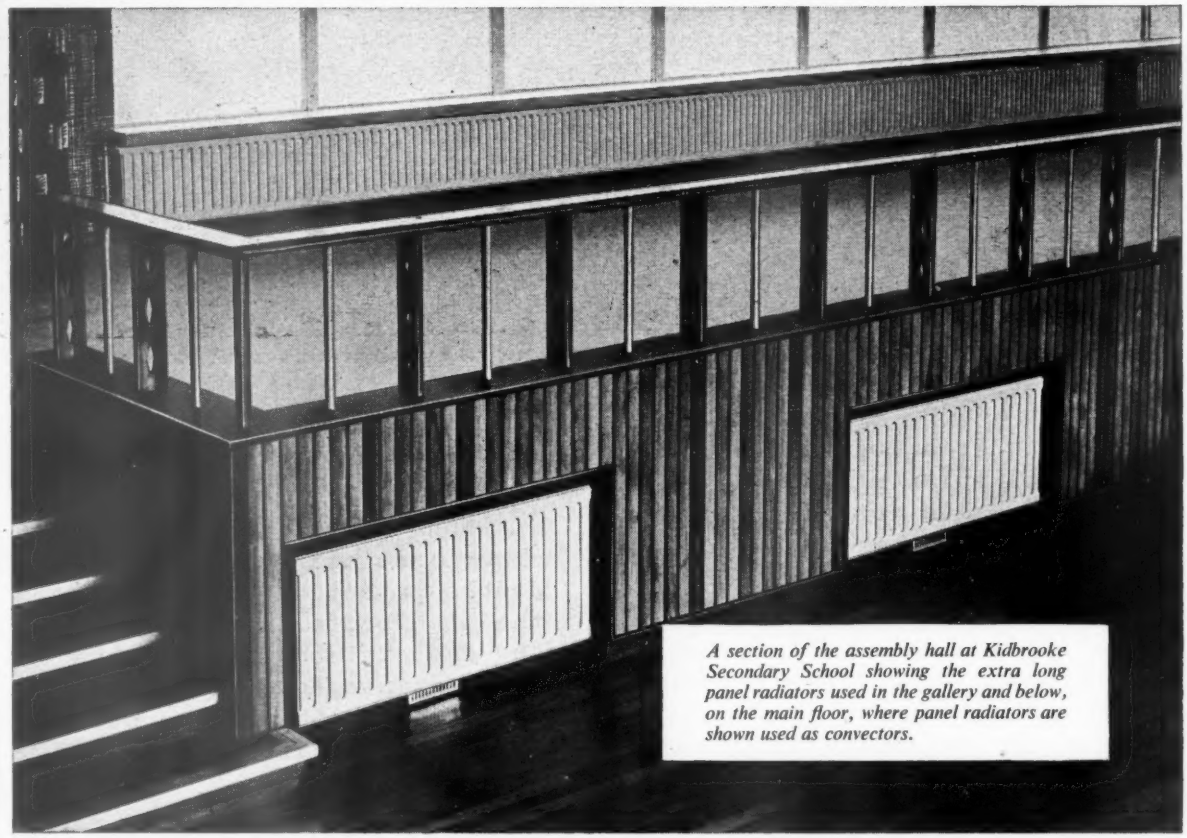
INSTALL **GULF**

LONG LIFE RADIATORS

GULF RADIATORS LTD., PENARTH RD., CARDIFF
Tel.: 20591/2

London Office and Showrooms:
229 Regent Street, London, W.1 Tel.: REGent 1051/6

COLUMN & PANEL TYPES IN ANY LENGTH & IN CURVED OR ANGLED FORM



A section of the assembly hall at Kidbrooke Secondary School showing the extra long panel radiators used in the gallery and below, on the main floor, where panel radiators are shown used as convectors.

PATENT GLAZING

Interior View of Factory

This is a modern factory for wool spinning and the process calls for fairly high humidity together with controlled temperature.

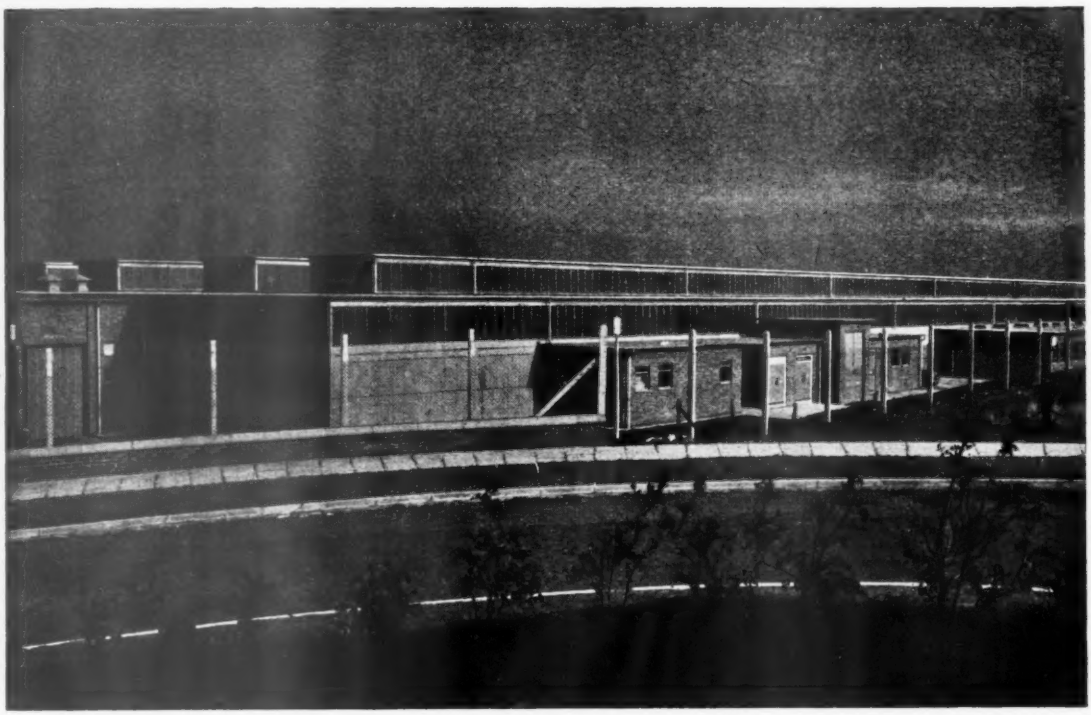
DOUBLE PATENT GLAZING was used to minimize the possibility of fluctuation in temperature through heat losses and also to avoid the excessive condensation which would otherwise occur under such conditions.

The thermal insulating and other special properties of double patent glazing enabled the Architects to air-condition the factory and thus achieve the most advantageous working conditions both for the process and the operatives.

Architects: William Holford & Partners, Liverpool & London

SPECIFICATIONS

DOUBLE PATENT GLAZING IN THE NEW JEREMIAH AMBLER FACTORY AT PETERLEE FOR THE NORTH EASTERN TRADING ESTATES LTD.



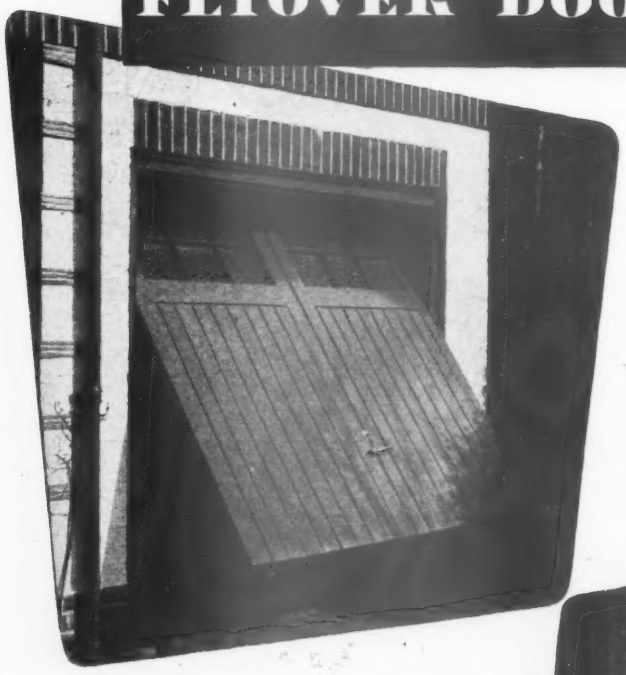
External View of the Factory

ISSUED BY
THE PATENT GLAZING CONFERENCE
BURWOOD HOUSE
CAXTON STREET
LONDON, S.W.1

Contractor: Bovis Limited, London, W.1

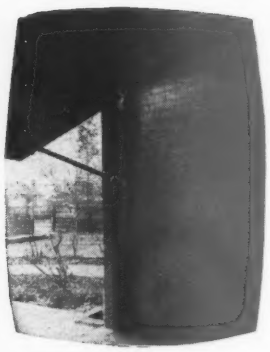
FLYOVER DOORS

NEVER LOSE THEIR BALANCE



Nothing is more certain to make you hopping mad than a garage door that drops unexpectedly on your foot. THIS CANNOT HAPPEN WITH FLYOVER DOORS. The gear has been carefully designed to ensure that every FLYOVER door remains in perfect balance in any partly open position.

EXISTING DOORS CAN BE CONVERTED



The operating arms and springs of FLYOVER gear are fitted to the door frames leaving every inch of wall space clear and unobstructed. No additional headroom is required to take the door. With a set of FLYOVER gear, and our illustrated instructions, ordinary swing doors can be quickly converted to the FLYOVER type. As the foremost manufacturers we have a range of gear for every door that slides.

HILL ALDAM

THE SIGN OF QUALITY

FOR EVERY DOOR THAT SLIDES

E. HILL ALDAM & CO. LIMITED

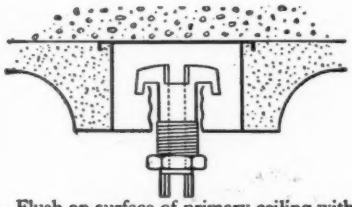
THE SLIDING DOOR PEOPLE

BRITISH WORKS, HASLEMERE AVENUE, LONDON, S.W.18

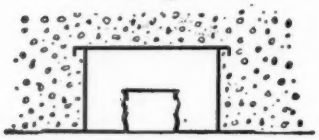
Telephone : Wimbledon 8080 (5 lines) Telegrams : "Aldamillo" Put. London

The New 'Invertrunking' by Mazda

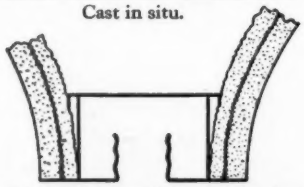
Supports conventional ceiling boards in suspended ceiling.



Flush on surface of primary ceiling with shallow plaster cove.



Cast in situ.



In conjunction with expanded metal for deep coves.

This new extruded aluminium cable-conduit has been designed to carry lighting fittings, electrical fixtures and cables. It supports ceiling boards, and can be built into structural ceilings.

Wiring can be laid in the Invertrunking after the ceiling is in position — even after it is decorated — and easily altered from time to time.

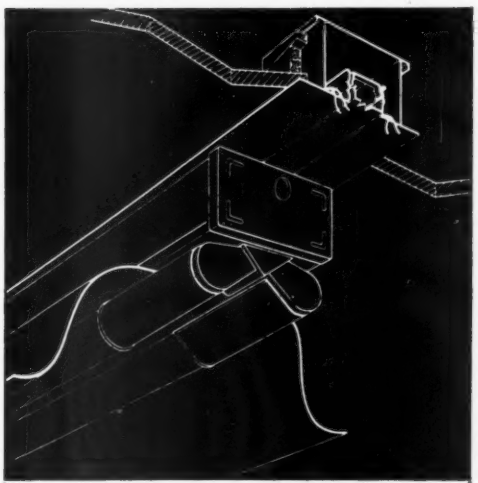
Invertrunking is jointed by aluminium channel sections, and there are Angle, Tee and Crossover pieces.

Literature on application

Wiring features

- ★ **New 'Parablock' connector permits rearrangement of lighting layout and changes of fitting, without altering main circuit wiring.**
- ★ **Special ¾" conduit Tee bolts support lights and other fittings, directly or on chain or conduit.**
- ★ **Takes any Mazda fluorescent or tungsten lighting fitting and other electrical equipment, such as clocks, loudspeakers, etc., provided with ¾" conduit fixing.**

'Invertrunking' is a Registered Trade Mark. *Patent App. No. 34591/53*



Mazda F1160
Fluorescent Fitting with Invertrunking.

Mazda lamps stay brighter longer

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(Member of the A.E.I. Group of Companies)

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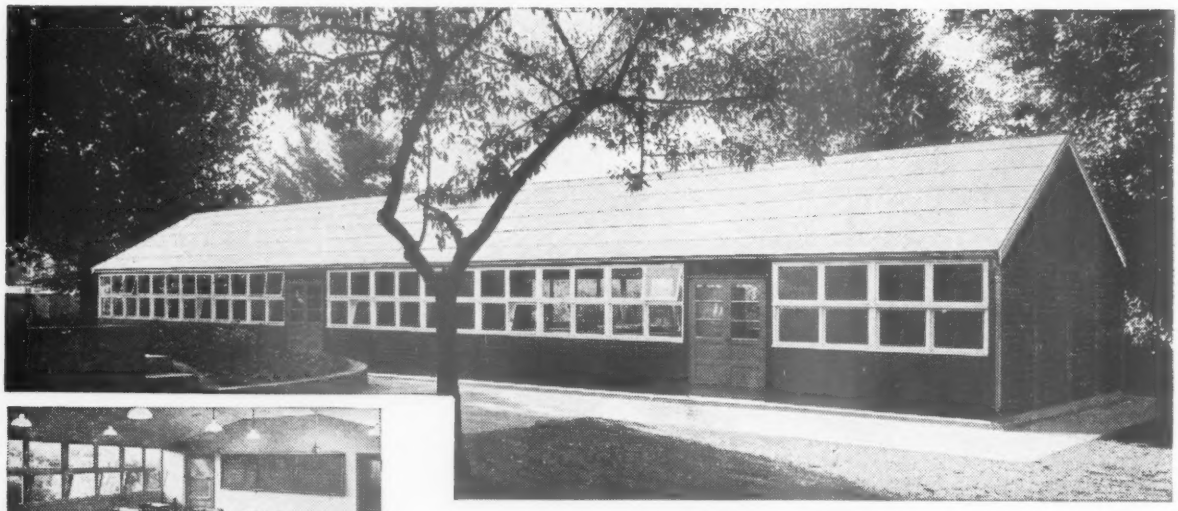
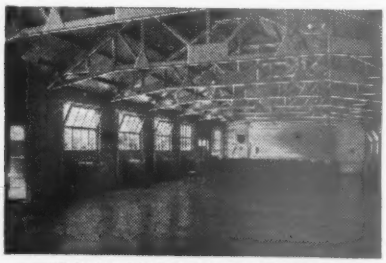


PORTSMOUTH CITY COUNCIL
Class Room

PADDINGTON GROUP HOSPITAL
Nurses' Recreation Room

WAKEFIELD GROUP HOSPITAL
Canteen



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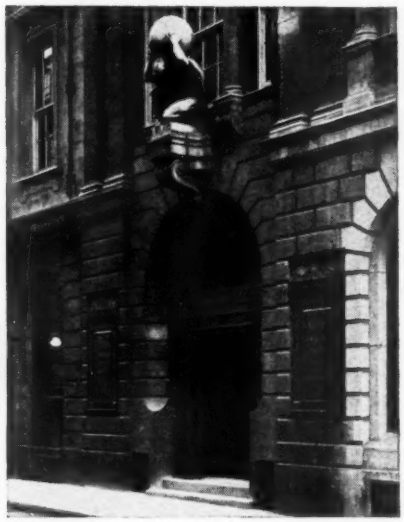
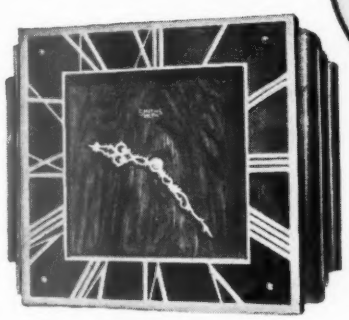
Smiths Clocks are available in a wide range of interior and exterior models, or can be made to the Architect's design whenever desired.

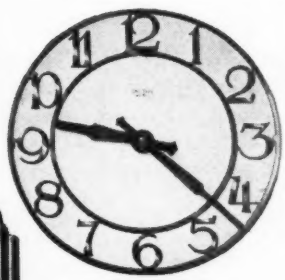


Main Entrance to Building

Main Entrance Hall

A General Office





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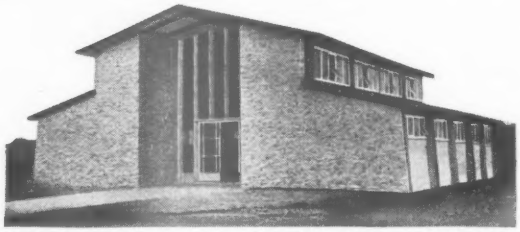

The Baptist Church, Fryerns, Basildon, Essex. *Architect:* Mr. E. Joseph Wood, L.R.I.B.A. *Builders:* Haines & Warwick

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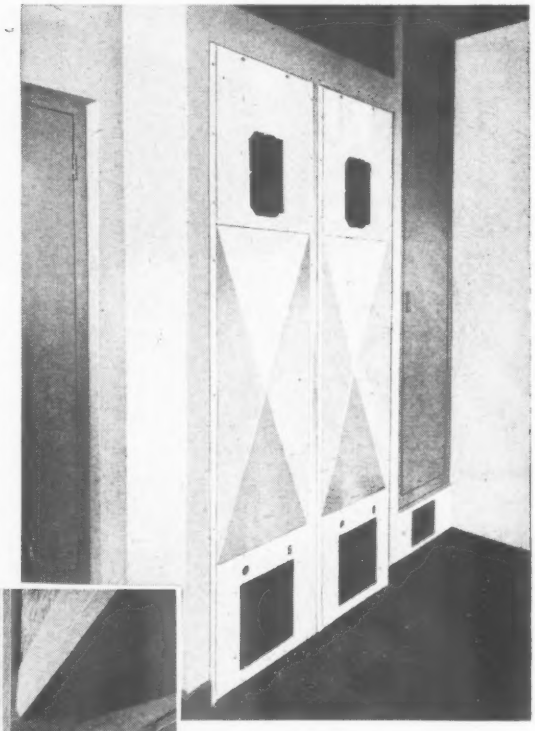
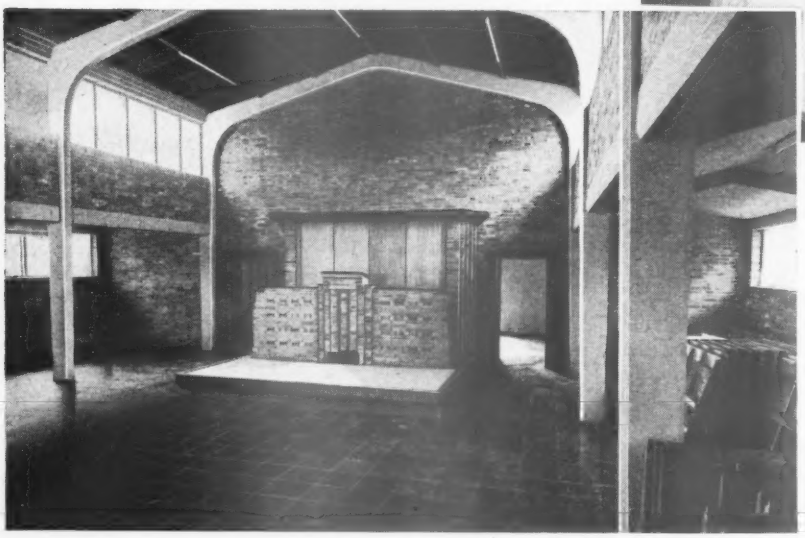


Two gas units fit unobtrusively into the vestry.



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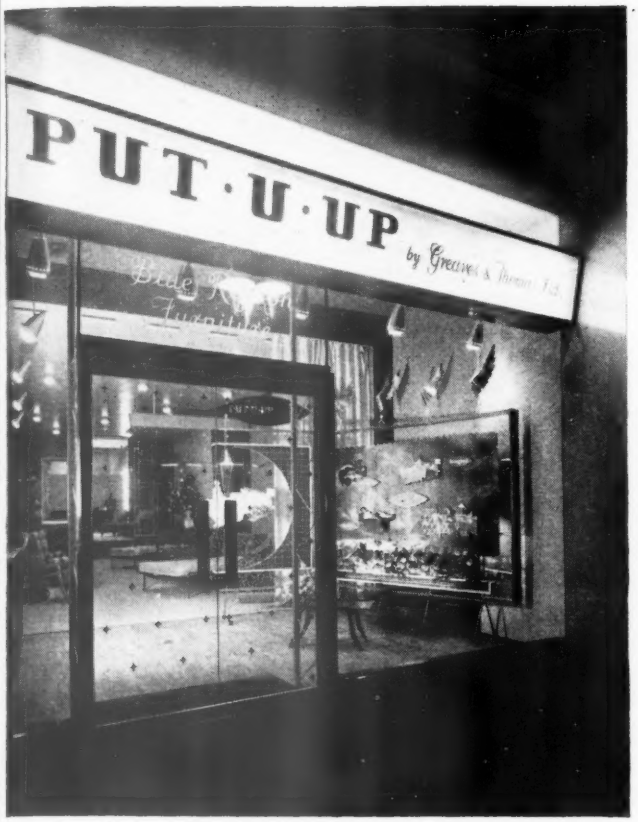

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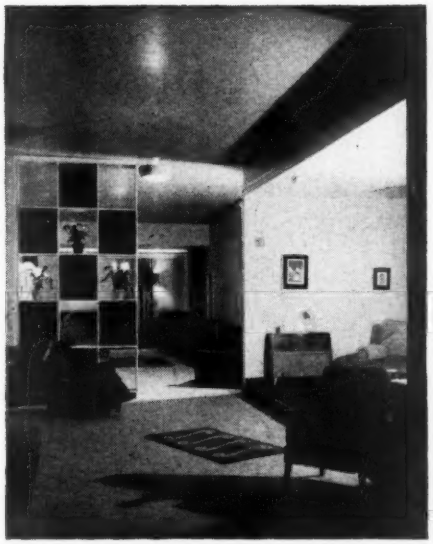

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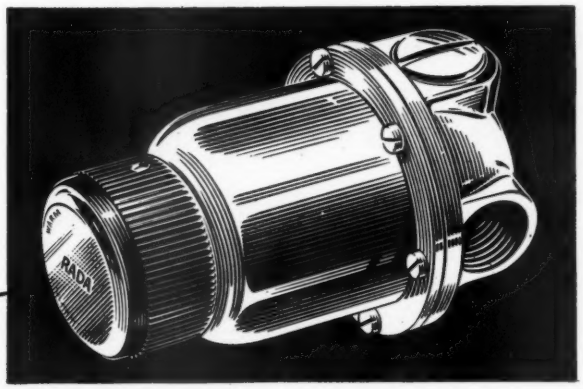

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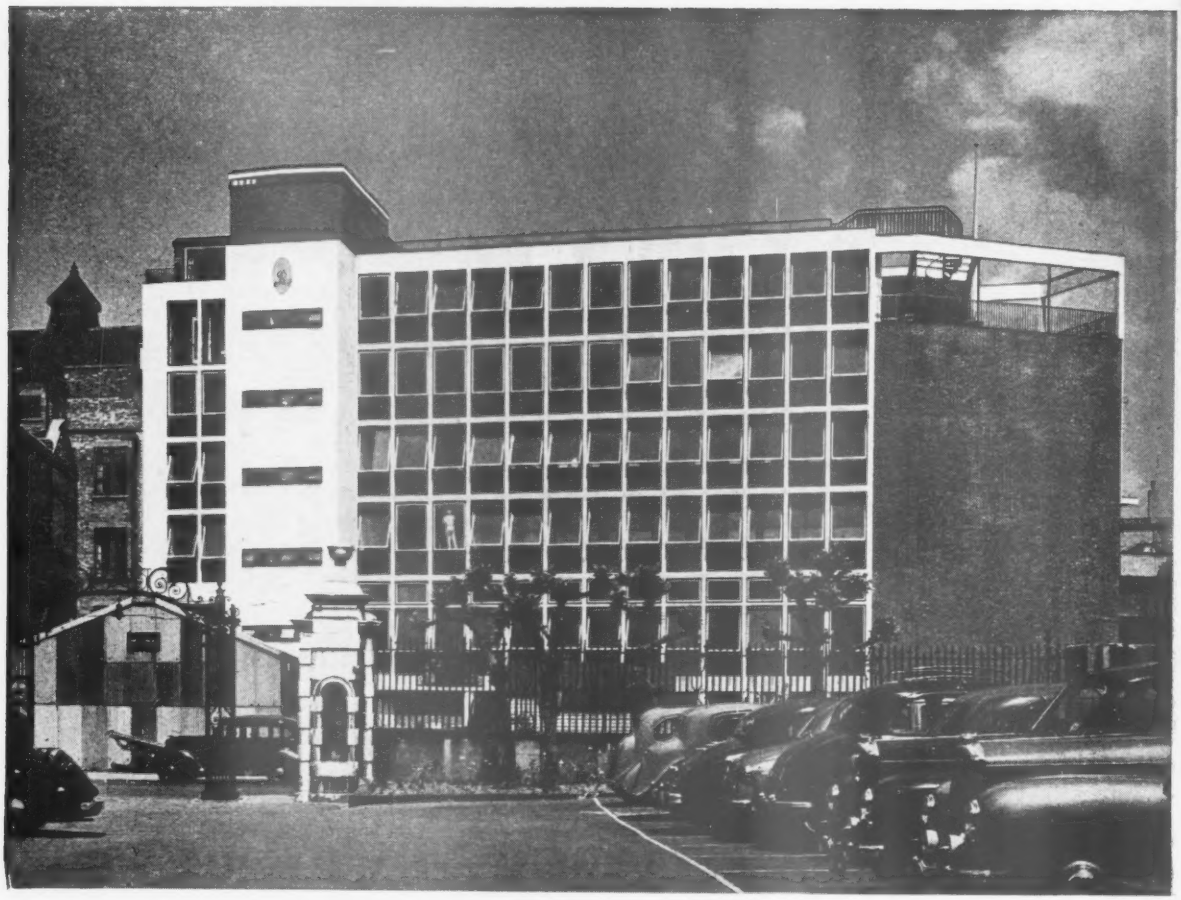

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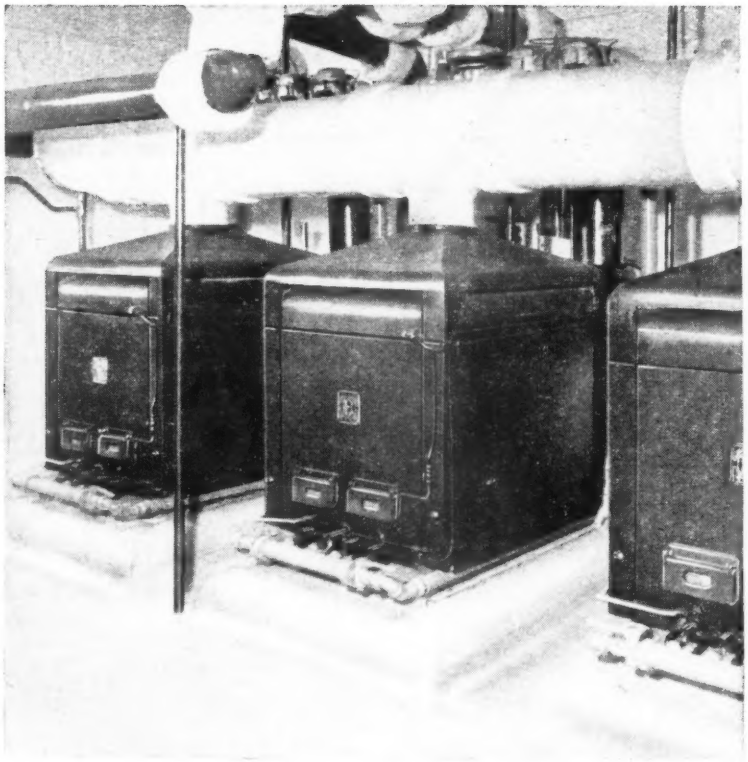

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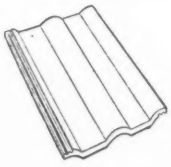

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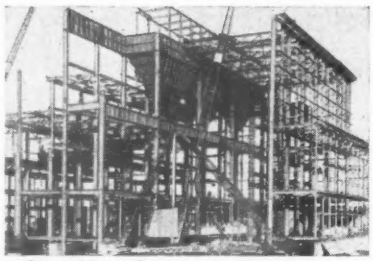
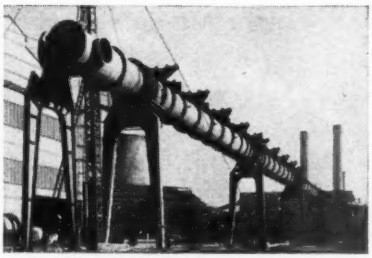
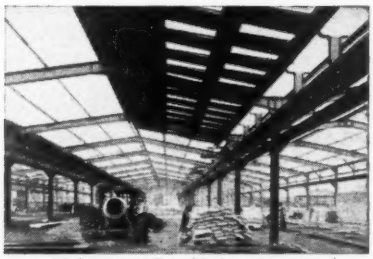


Power House Construction, Doncaster.



All-welded 6 ft. dia. Gas Main.



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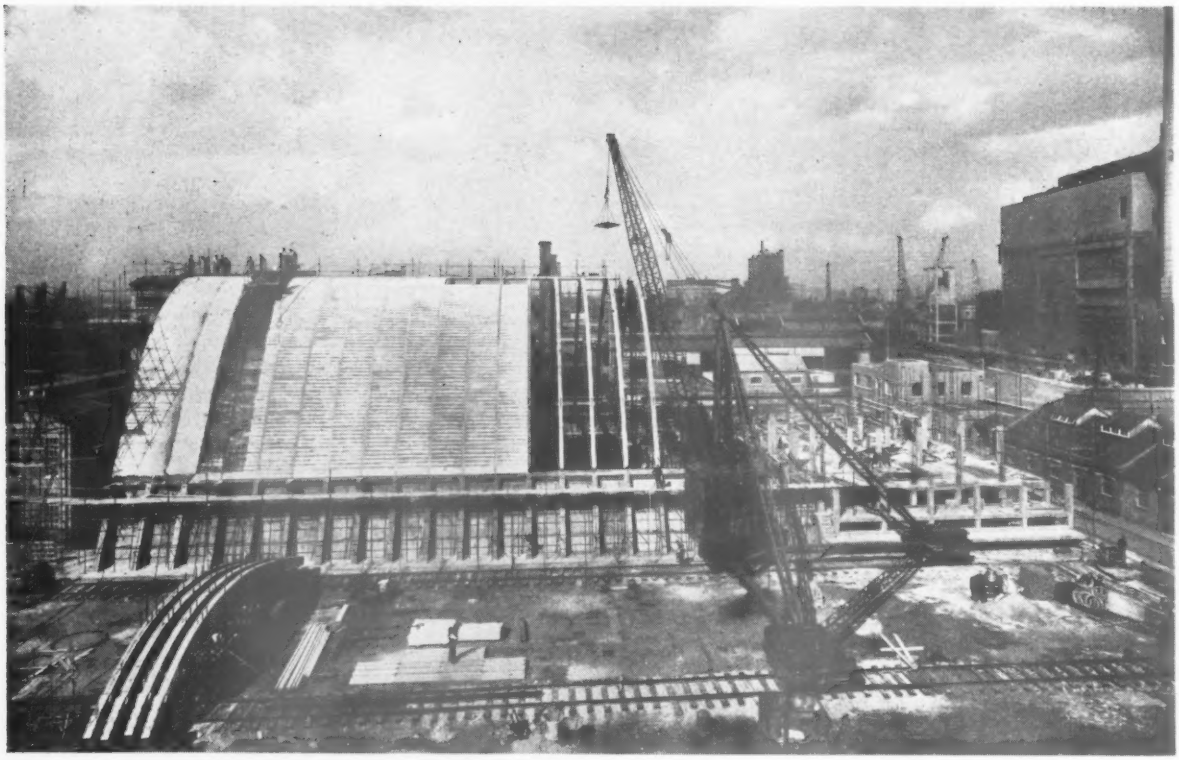

A store for 10,000 tons of Sulphate of Ammonia, under construction for the South Eastern Gas Board at their Phoenix Wharf Chemical Works, Greenwich.

Construction is of Precast 3 Hinged Arches, the constituent Rib members being Post-tensioned, prestressed concrete, weighing over 10 tons. The roof panelling is of Pretensioned, Prestressed concrete planks, three inches thick.

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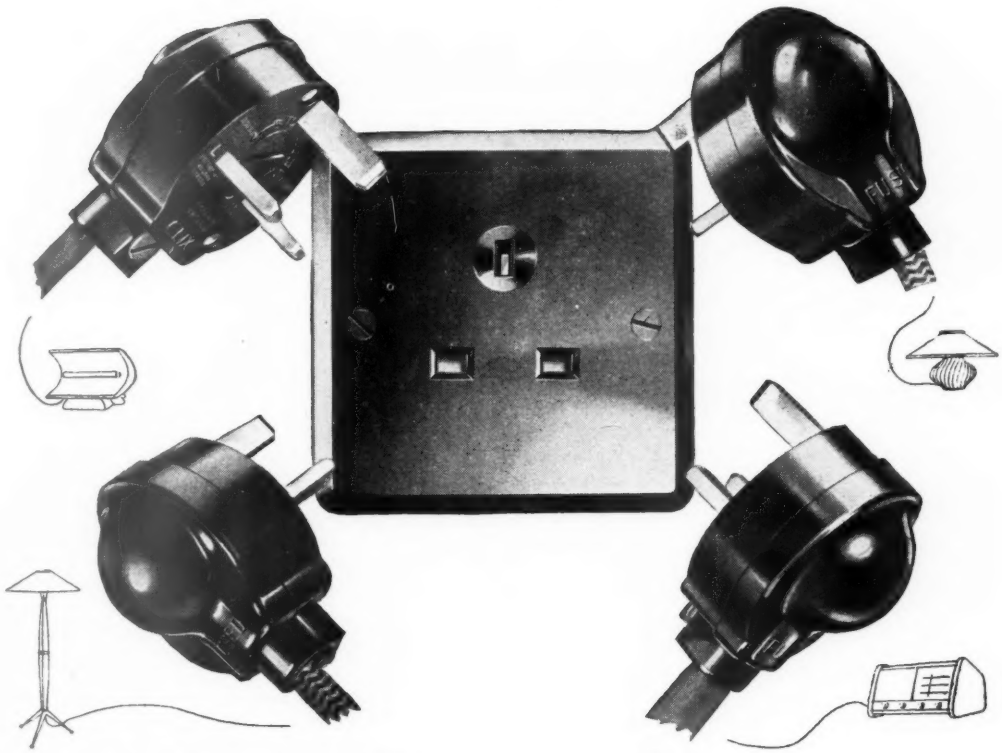
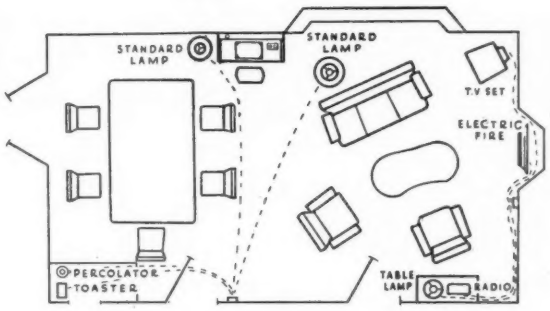


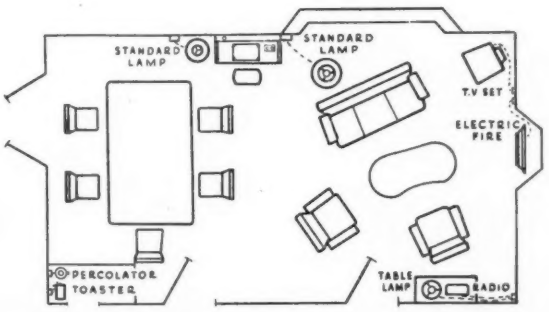
4 into 1 *won't* go...

...so be generous when specifying the number of Socket Outlets for each room.

THE Windsor range of Ediswan Wiring Accessories includes all types of 13 amp. Socket Outlets, Switch Socket Outlets and rectangular pin fused Plugs required for normal installations—quality Accessories at competitive prices. Remember also that Ediswan manufacture a Plug which can be re-fused in 15 seconds.



Insufficient socket outlets wrongly placed. Note the long trailing flexibles running dangerously across doorways and "traffic ways".



Correct arrangement of socket outlets. Long flexibles and inconvenient adaptors are avoided.

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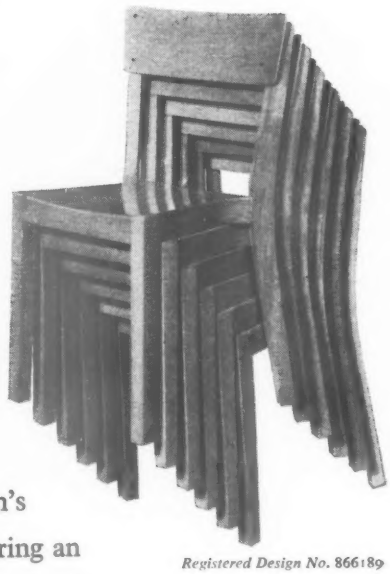

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Every time you take a chair away you add to the general confusion because there doesn't seem to be anywhere to put it. This is great fun at a children's party, but not even faintly amusing when you are clearing an assembly hall during the tea interval for a gymnastic display. Most organisers have heard about nesting chairs, but not all of them know about *wood* nesting chairs. You can see how easily they stack, you can *feel* how comfortable they are.

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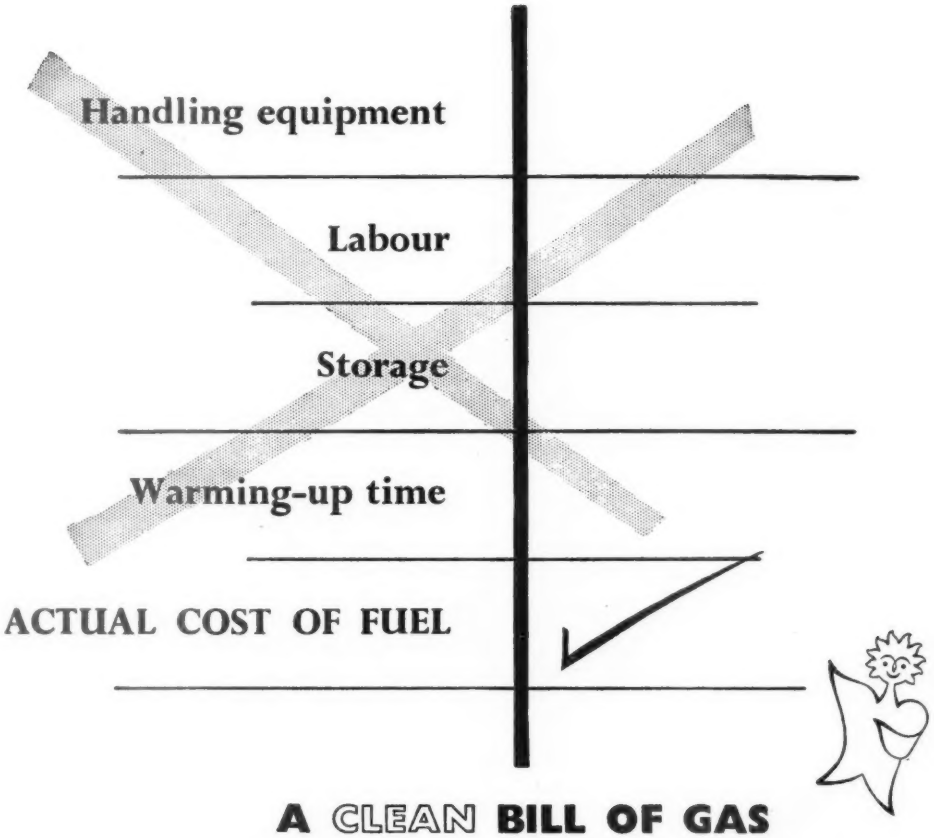

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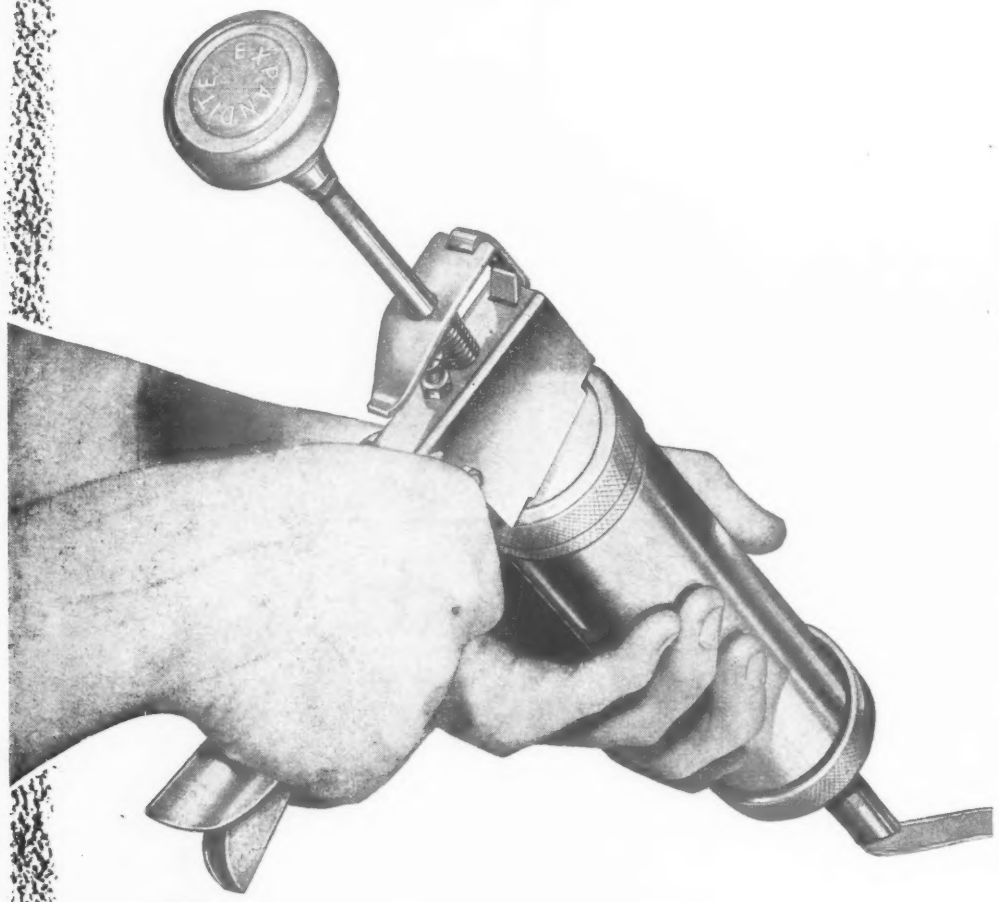

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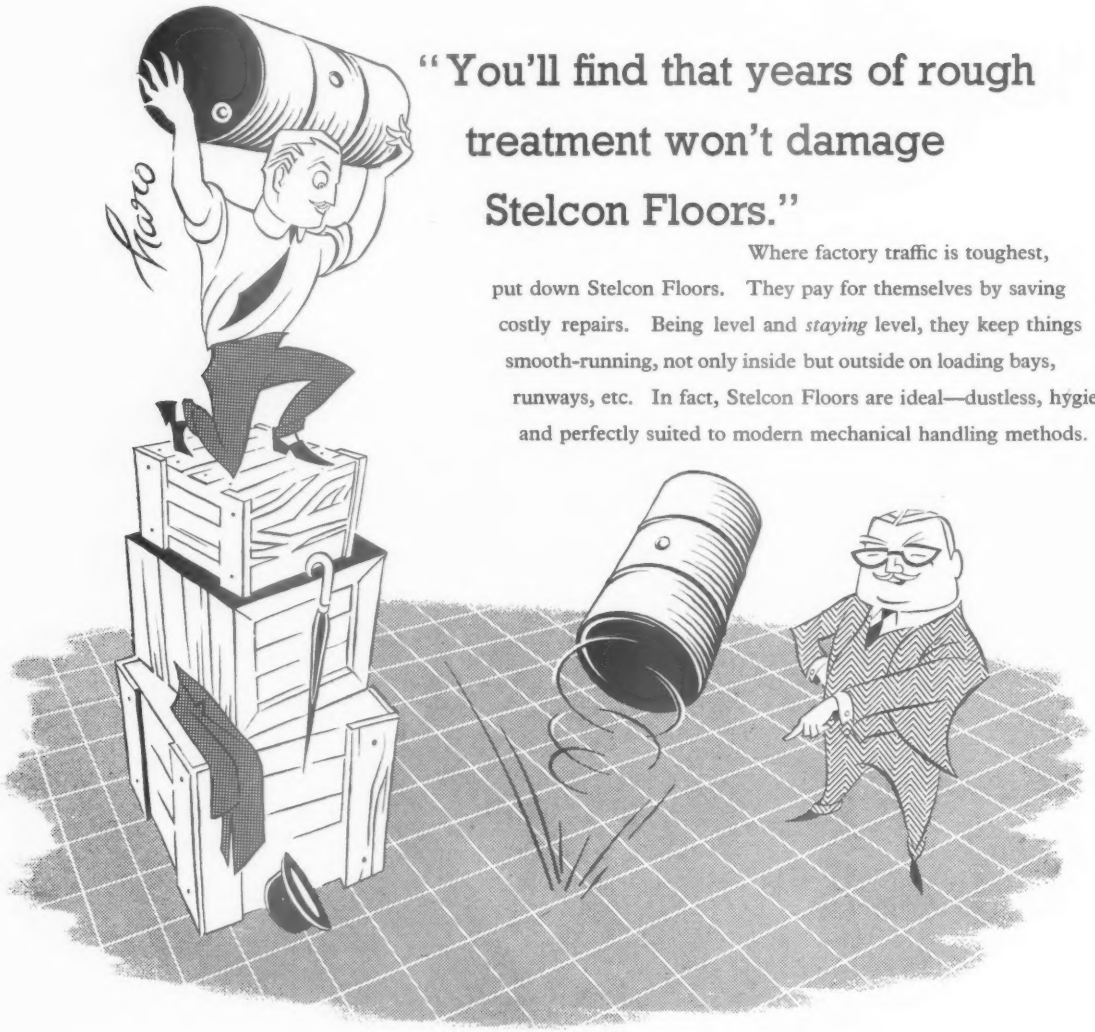

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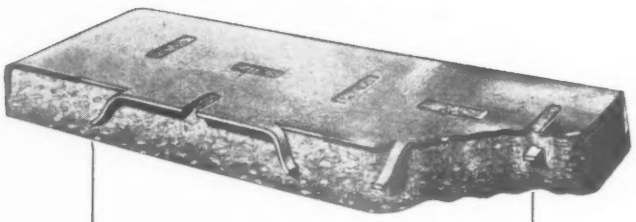

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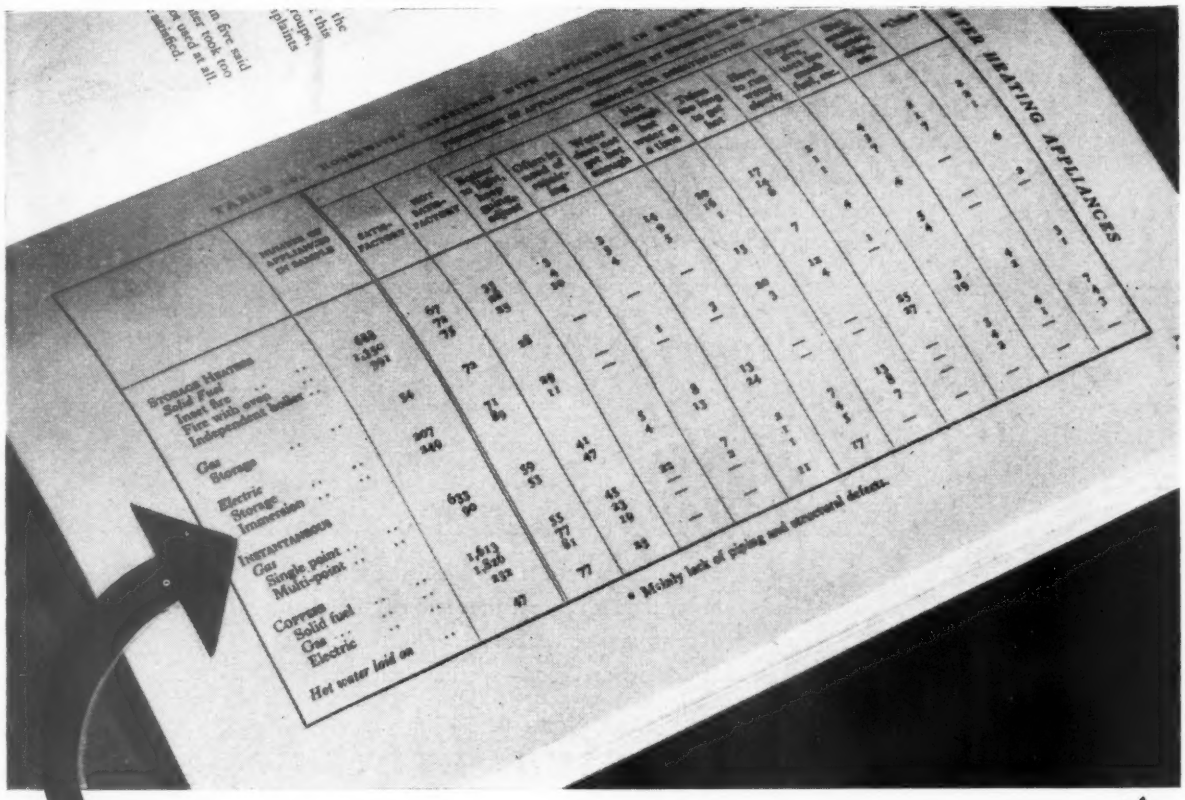

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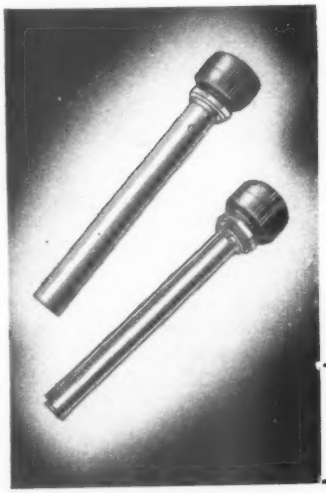
* National Building Studies Special Report No. 8 "An Inquiry into Domestic Hot Water Supply in Great Britain" (H.M. Stationery Office)



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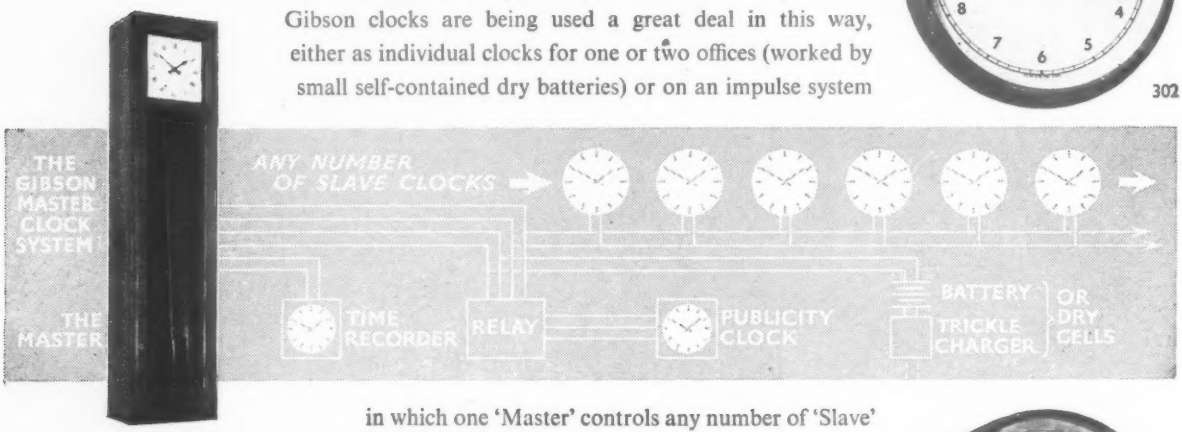
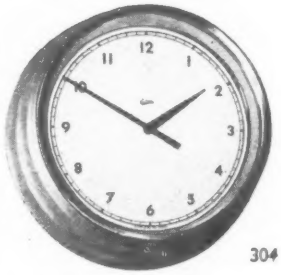


in which one 'Master' controls any number of 'Slave' clocks. This method is very accurate and has the advantage of being independent of power fluctuations. Available designs are good—specific designs can be carried out.



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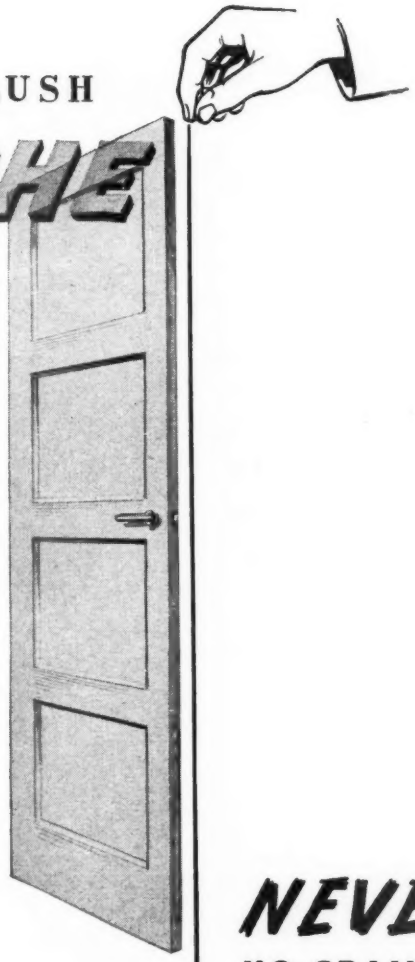

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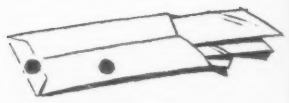

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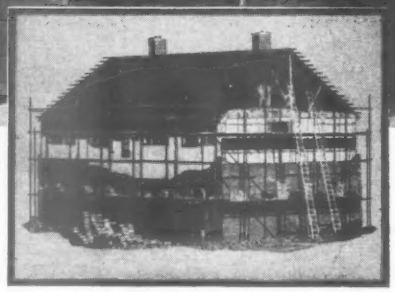

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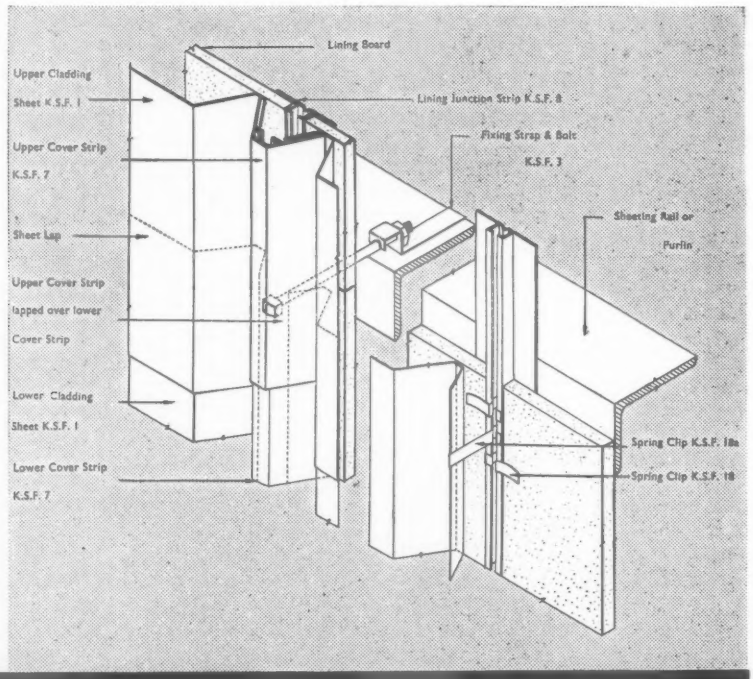
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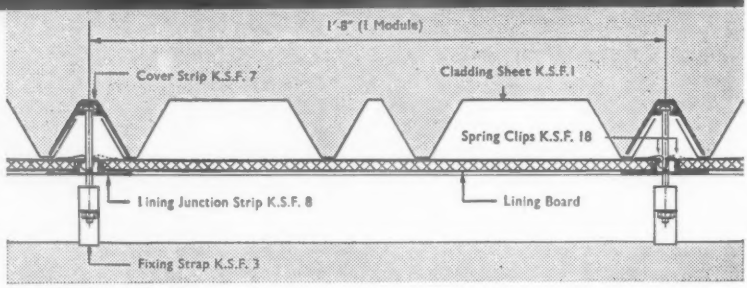

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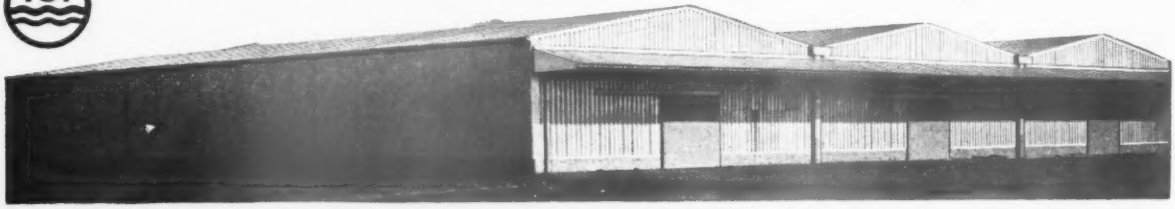

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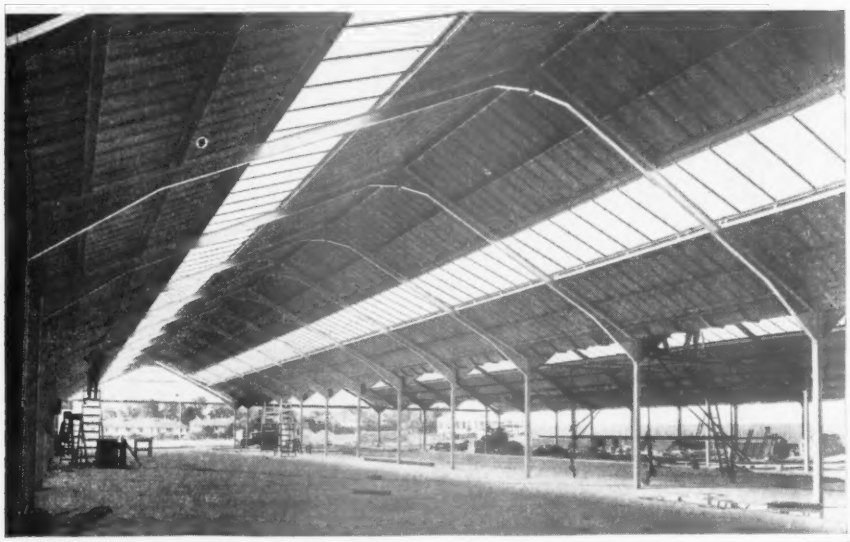

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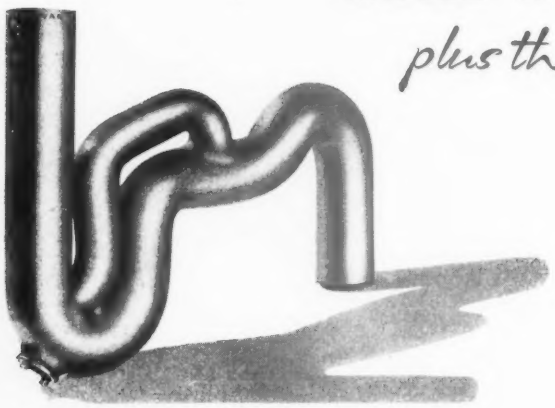

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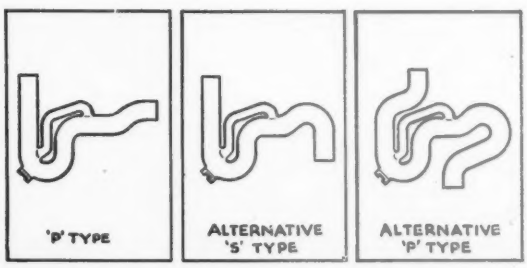

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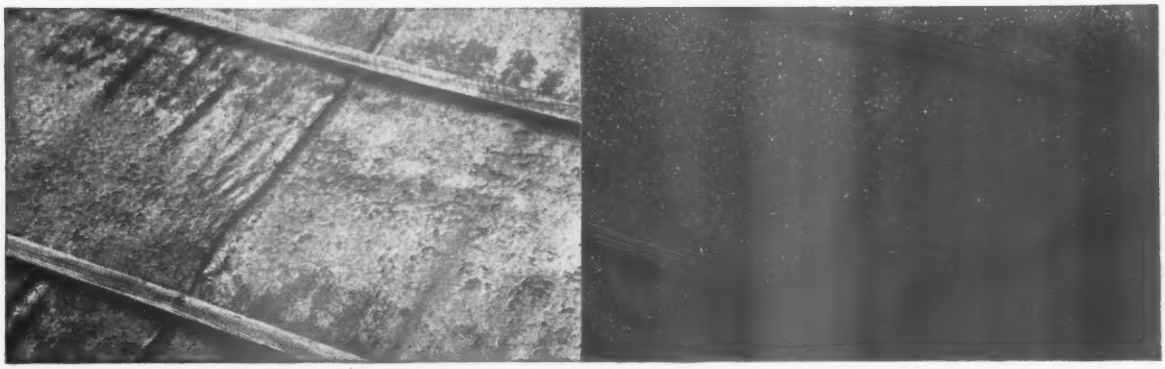

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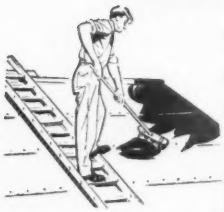

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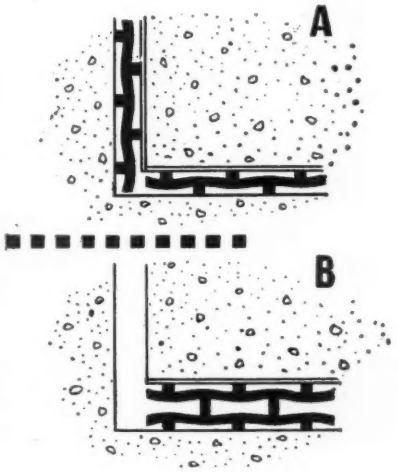

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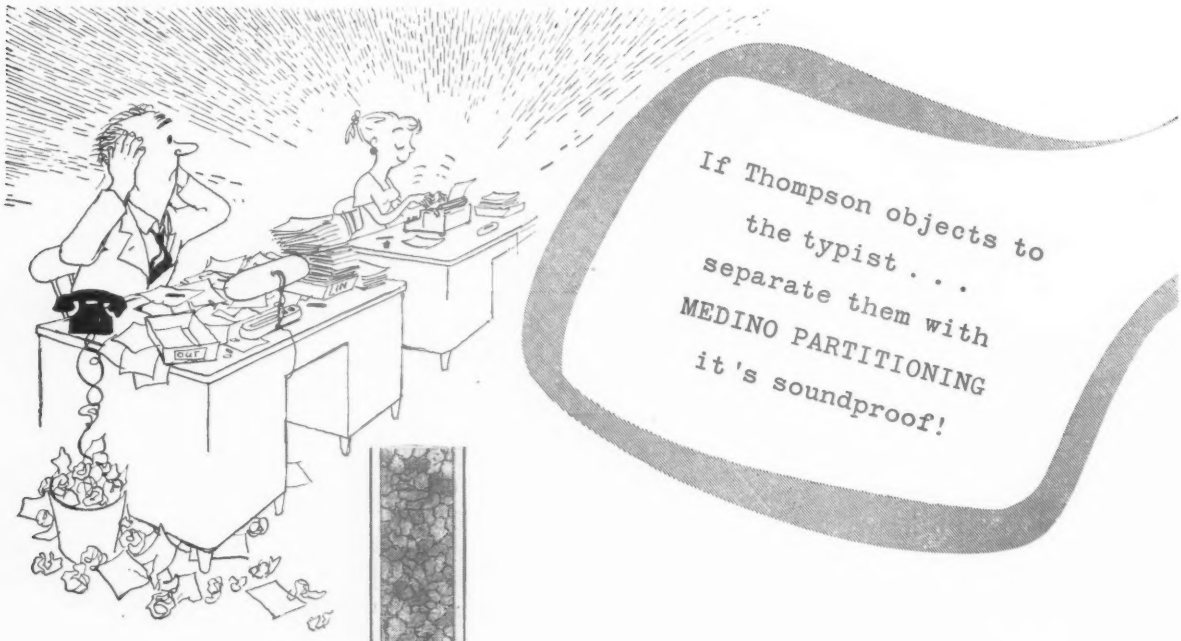

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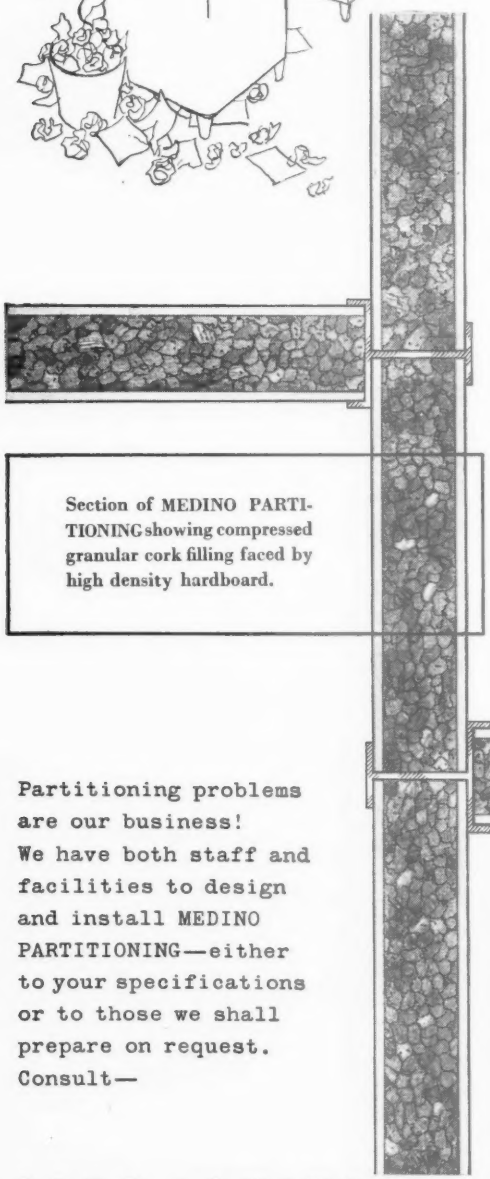

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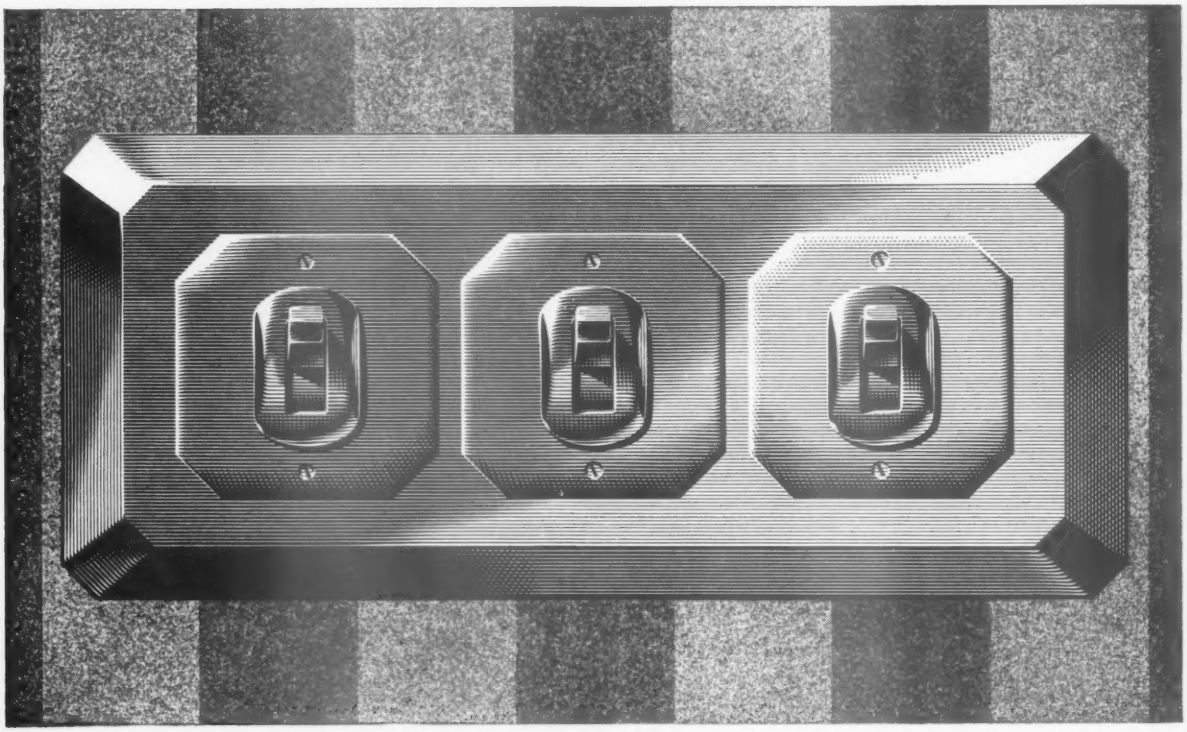

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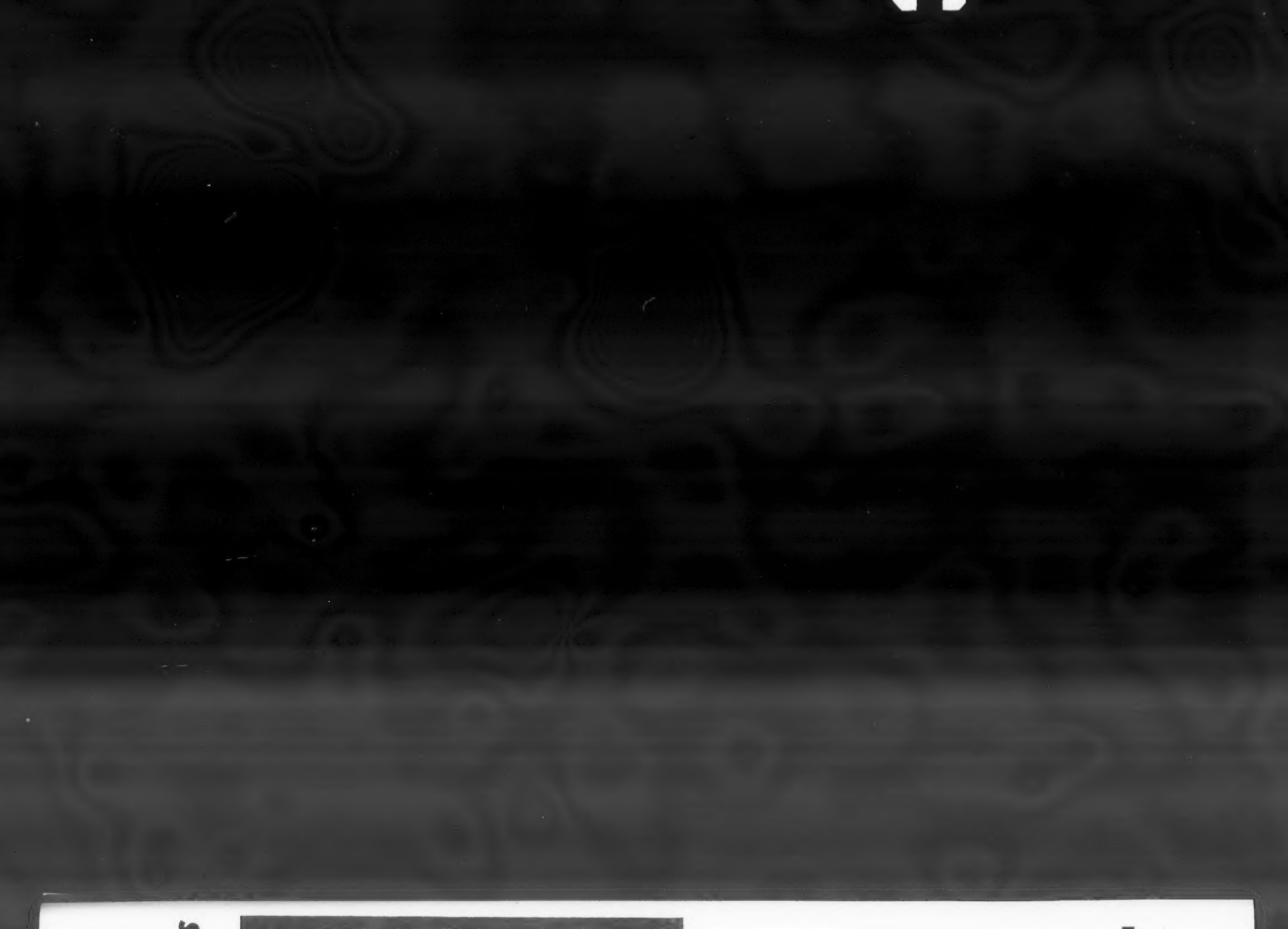

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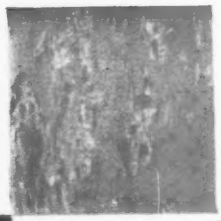

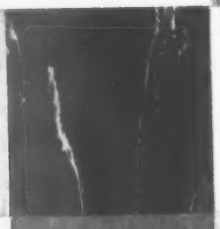

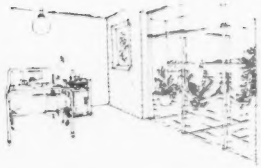

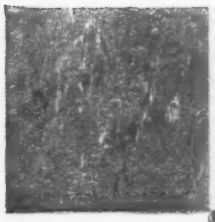
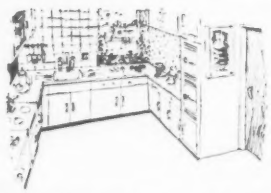

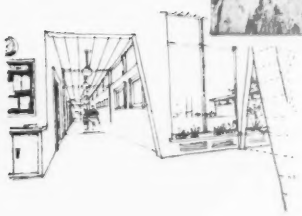

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No. 3133 March 17, 1955 VOL. 121

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CAN WE SAVE THE CITY . . .

Duncan Sandys's letter to the LCC approving, with modifications, the development plan for London makes one anxious to run over the plan again—preferably with a couple of planners in one's hand—so as to find out just what is intended. For instance, St. Paul's. We know that opportunities have been missed to provide: "a truly worthy setting for Wren's world-famous cathedrals"; there have been references to this fact in this JOURNAL. But is the Minister prepared to be sufficiently tough along the right comprehensive lines to save something from the neo-Georgian wreckers?

*

Mr. Sandys asks for more open space: "a little open space, well placed, can do much to bring cheerfulness into a crowded area." Nice words, but where do we get the space from? More decanting into outer towns, or should we have higher densities? If the latter, the higher densities must not be in Hampstead, Highgate, St. John's Wood, Dulwich or Blackheath, says the Minister. I agree that the character of these places must not be destroyed, but it would be a reactionary step to prevent the LCC's enlightened policy, which has been pursued at Wimbledon with such architectural success, from being practised anywhere else. Certainly the slight depreciation in value of "desirable" properties must not be allowed to do so.

*

Mr. Sandys has spotted that nearly every time an industrialist moves his factory out of London—by dint of BOT persuasion, new towns, expanded towns, special industrial areas and so on—the vacated buildings are promptly reoccupied by someone from outside coming in. And the ministerial answer? That the LCC should purchase the vacated factories . . . "no doubt you will recognize the importance of allocating adequate funds for this purpose." If that is all the help the Government can give, Londoners must expect a small increase in rates—which they can pay from the pocket that is not used for New Town payments.

. . . WITHOUT PLANNERS?

And while we are talking about London let us mourn together the retirement of Dr. Holden and Professor Holford from their position as planning consultants to the City. With remarkable patience they have endured the frustrations of their task over a long period. Now they have had enough.

*

The difficulty seems to be a disagreement about what constitutes planning. The City Corporation have never been brought to understand that planning does not consist of having a technical planning officer without authority and consultants without the time or resources to work in. To plan the City requires not only a considerable full-time staff studying needs and means, and preparing comprehensive development plans, but highly qualified full-time designers with powers to co-ordinate the architecture as it goes up.

*

If the City will not accept this, its erstwhile consultants are quite right to refuse to continue to be used as a façade which enables the City to pretend that planning is taking place when it is not.

SPEC BUILDERS

About a year ago the JOURNAL started complaining about the apalling spec. built houses that were going up. The latest to take up the cry is *Architectural Design*. But support has also come from that stalwart co-columnist Abner, in the *Architect and Building News* and also from Abacus of *The Illustrated Carpenter and Builder*. Abacus's last article on the subject was magnificent—it left me amazed by his invective, and thankful for his courage. He was even ruder about the planners who permitted these bad designs than about the builders who erected them—which is fair enough. I only wish that this tender heart of mine could develop such righteous spleen.

CREATION WITH CRAFTSMANSHIP

The Halifax Building Society, Strand, W.C.2. Architects: Gale, Heath & Co.

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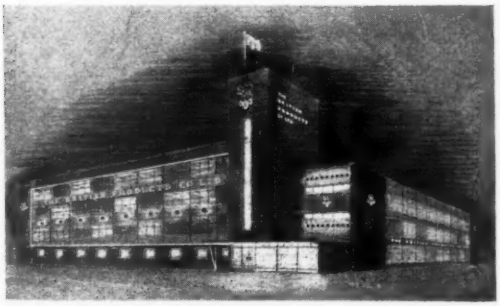
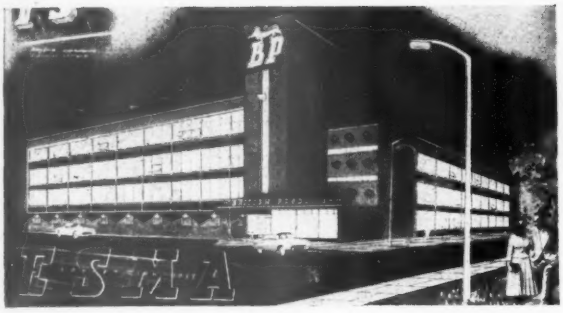
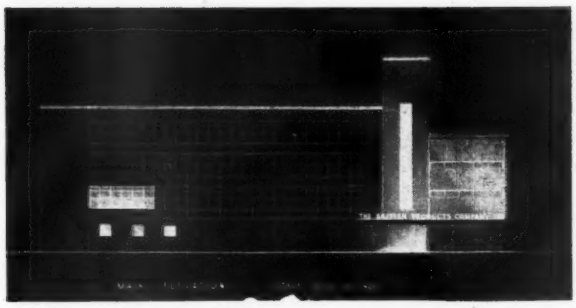
Architects do not think enough about illuminated signs when designing commercial buildings. That was the message that speakers—including Misha Black—were anxious to put over at the annual luncheon (in London last week) of the Electrical Sign Manufacturers Association. The Association hopes that its recent competition for sign design—the winners of which are shown here—will remind architects of their responsibilities. These designs were by: right, J.K.W. Hopgood (first); below, R.W. Pepper (second); below right, S. Rickard (third); bottom left, P. Watkinson, A.R.I.B.A. (commended), and bottom right, F. T. Oliver (commended).







BUN-FIGHTS AT BLUECOAT?

Sneak previews being one of this column's special fancies, ASTRAGAL was delighted to have a sight of the refurbished and redecorated Blewcoat School (note the crazy Queen Anne spelling) in Caxton Street, Westminster. This snug brick box—more or less Wren-school, but without any architect's name attaching to it—is now the membership office of the National Trust.

*

If the outside is snug and compact, the interior is a surprise, for a flight of steps from the street lead up to a tall, narrow slot of a door and straight into a big light interior, with windows all around. There is no vestibule, just a slight corinthian portico through which one climbs two or more steps to gain the main floor level. There is more drama in this sudden entry into a wide, lofty box of well-lit space than one finds in some Hawksmore or Archer churches. It is a pity that the building's scholastic connection, which had grown tenuous over the last century, is now finally broken. But ASTRAGAL will be easily mollified if the National Trust uses this charming room for an occasional public function: it should be just the place for a reception, cocktail party or other large-scale, stand-up bun-fight.

*

In the meantime, if you want to see the interior just pop in and become a member of the Trust.

D. W. RICHARDSON

Some readers may recall the name of D. W. Richardson, who died very suddenly last month after a short illness at the age of 46. Of his work as an architect. I know nothing; indeed, I only met him once, but, as the JOURNAL'S correspondence column will have shown, he was a ceaseless advocate of higher salaries for assistant architects and he took every opportunity —as some at the RIBA may remember —to show how local authorities obtained architectural services at extremely cheap rates. It must have been satisfactory for him to know that his early, often single-handed efforts have helped to bring the subject of architectural assistants' salaries before the whole profession. He leaves a wife and two children.

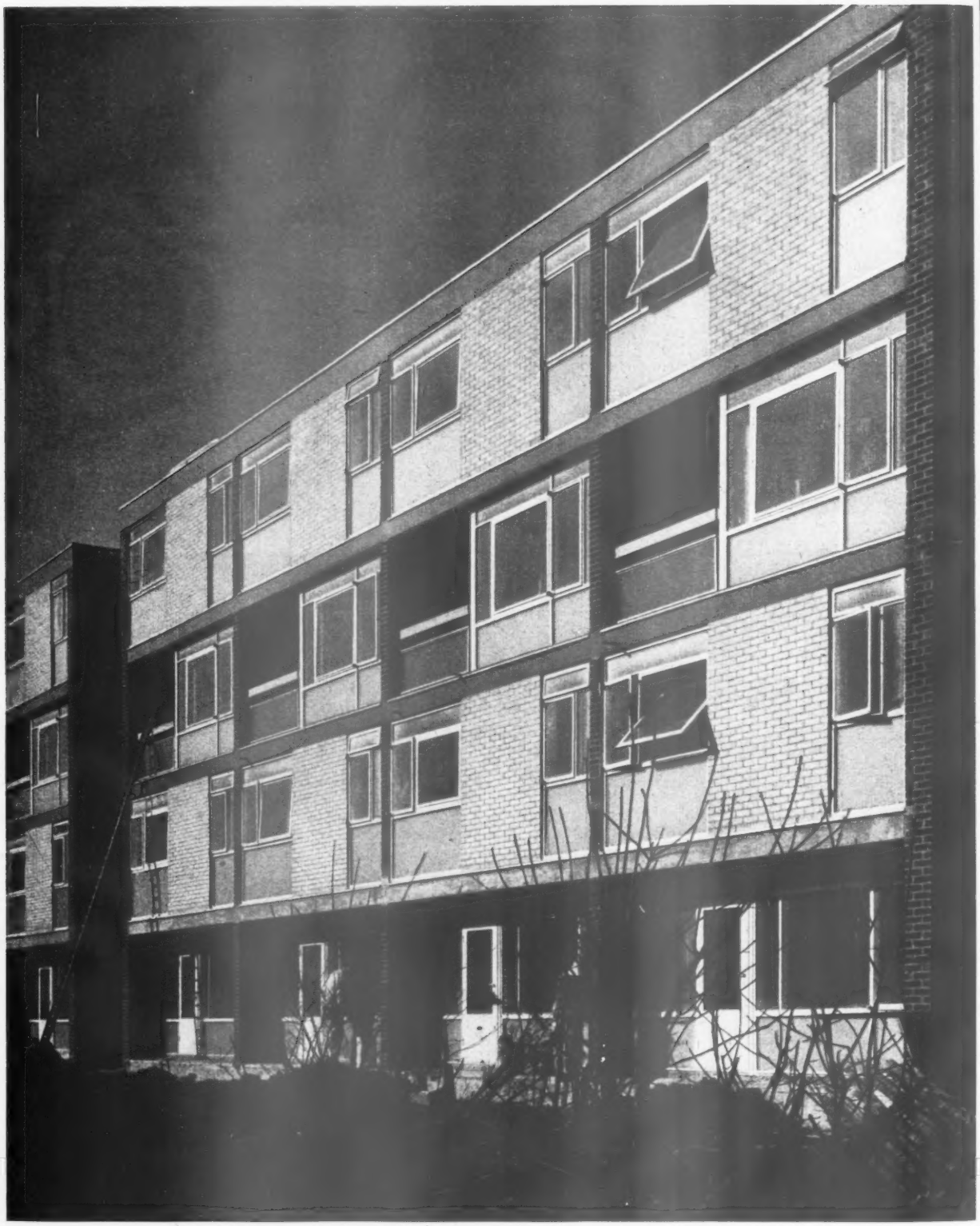
MARILYN MONROE AT RIBA?

I must apologize for that title; it really isn't fair—but I had to think of some way of attracting your attention. My colleagues on the Technical Section have asked me to tell you, in my usual light-hearted, readable manner, that it isn't as late as you think.

*

In other words, although it's long past the time when you should have applied for your Information Centre index, you can still have one if you hurry up.

ASTRAGAL



Cross Walls

This photo of some LCC four-storey maisonettes at Loughborough Road, Lambeth show a characteristic expression of cross wall design. In-situ concrete floors are supported by 9 in. solid brick walls. The open ends of the structure are closed in by panels which are as highly insulated as cost will allow. In these, cavity brickwork alternates with framed panels in which the parts below the windows comprise an outer skin of wired glass, a ventilated cavity, asbestos board, glass quilt and a chipboard inner lining. (J. L. Martin, Architect to the Council; J. Whitfield Lewis, Principal Housing Architect; J. H. Humphreys, Senior Structural Engineer.)

The Editors

CROSS WALL CONSTRUCTION

THE constructional form known as the cross wall—a form, that is, in which the loads are carried wholly by the walls running at right angles to the main axis of the building—mirrors what we mean by modern architecture. It has the merit of being economical, not only in fact but also in appearance: two conditions which, in the present state of the building industry, do not by any means invariably go together. When cross walls are used economy is produced not by mere mass production but by a nice balance between structural strength, ease of assembly and practical convenience.

Unfortunately the appeal of this form of construction has been offset by uncertainties felt about its structural properties and by an imperfect understanding of the limitations which it must impose on planning. The only country which has issued regulations governing the design of cross walls is Denmark. Architects and engineers in this country who wish to use cross walls must therefore be able to persuade their local authority surveyor that their particular proposals may be " deemed to satisfy " the general conditions for good building. One of the objects of this issue of the JOURNAL is to make their task easier. Fortunately there are now sufficient examples of cross wall building in this country for it to be possible to draw certain conclusions from them.

We have, therefore, asked two of the most enthusiastic cross wall exponents to write about their experiences. One of them, Peter Dunican, is a partner in the engineering firm of Ove Arup and Partners; the other is A. W. Cleeve Barr (one of the JOURNAL's Guest Editors), who is Senior Architect in charge of technical development and research for the Housing Division of the LCC Architects' Department. In their review they have drawn chiefly on their own knowledge obtained from long-standing co-operation on LCC housing projects. They have also collected data from other people who have used cross wall construction for varying types of building.

CROSS WALLS

By cross wall construction we mean a structural system in which the internal space dividing partitions normal to the main axis of building are utilized as vertical loadbearing members, that is, the non-structural partitions (or many of them) become structural walls. These cross walls can be either brick, block, concrete or any other material which is able to support considerably more than its own weight. The resulting structure is a series of stacked open-ended boxes, the open ends of the boxes framing the main external elevations. Cross wall constructions with reinforced concrete walls and floors are usually referred to as box-frame structures. In this report, we are mainly concerned with constructions using unreinforced cross walls.

The advantages of the system which have led to its development since the war are: (a) the load-bearing walls can be designed to utilize more fully the strength of the brickwork (blocks or concrete) of which they are to be built and therefore to make maximum economic use of traditional materials and labour which are generally

in short supply and which are often wastefully used in traditional forms of construction; (b) the system lends itself to repetition and standardization of structural as well as non-structural elements and, therefore, to prefabrication and more rapid building methods; (c) the external walls are not required to perform any load-carrying function. They can be better designed to meet the requirements of thermal insulation, daylighting and other functions. Aesthetically a great many possibilities are opened up; (d) space consuming or obtruding beam and column frameworks are not necessary.

A disadvantage, or discipline, of the system is that planning is restricted by the need for the cross walls to maintain their position from foundation to roof.

CONTENTS

	page		page
Main Structural Problem	358	Composite Construction	367
Danish Regulations	358	Limitations in Planning	367
Alternative Methods for ensuring Stability ..	359	Sound Insulation and Fire Resistance	368
Design of Cross Walls	359	Maisonette Construction	368
Walling Materials	360	Cladding	371
Walling Specification	362	Differential Settlement of Foundations	372
Spacing of Cross Walls	363	Codes of Practice and Byelaws	373
Design of Floors	366		

MAIN STRUCTURAL PROBLEM

It is surprising that in spite of a good deal of discussion on the subject and the desire of architects generally to be rid of external load-bearing walls, cross walls have not been more widely adopted in practice. This is due not merely to the limitations of planning which are imposed, but to the fact that the system poses a number of uncertainties from an engineering point of view.

The question of overall stability of the completed cross-wall structure is fundamental to the design conception. Given no longitudinal bracing, one can imagine the cross walls as a series of playing cards standing parallel on edge—ready to fall over at the first puff of wind. This is the usual first reaction of many responsible officials charged with the administration of byelaws.

Reinforced box frame systems obtain their longitudinal stability by the rigidity of the junctions between walls and floor slabs. In the systems under consideration the walls are built in materials with little or no tensile strength and no direct fixity is obtained at the junctions with the floors. However, due to precompression in the walls from the floor loads they support and their own self weight, the walls and the floor to wall joints are able to sustain tensile stresses up to the limit of their precompression without exceeding the normal design criteria of no tension.

THE DANISH REGULATIONS

Although current codes and byelaws do not make any specific requirement in respect of overall stability, it is interesting to note that the Danish regulations require buildings of this type to be designed to withstand a lateral force equivalent to 1½ per cent. of the total weight of the building, acting horizontally at the centroid of the mass. If the structure has no buttressing elements, such as longitudinal staircase walls, this lateral force must be taken by the cross walls in bending. The net result of this action would be that the direct stress in the walls at the floor junctions would be increased by about fifty per cent. which (assuming in-situ reinforced concrete slabs at each floor level and wall design in accordance with BSCP 111) should not overstress the walls. This "earthquake" type loading (Fig. 1) produces a stress distribution at the junctions of the floors and walls similar to that which results from differential settlement of the foundations and accidental eccentricities during the construction of the walls, and we recommend it to the appropriate authorities in this country as a reasonable basis of design. Fig. 7 shows the structure of a plain concrete four-storey block of flats at Malmo, Sweden, designed on this principle.

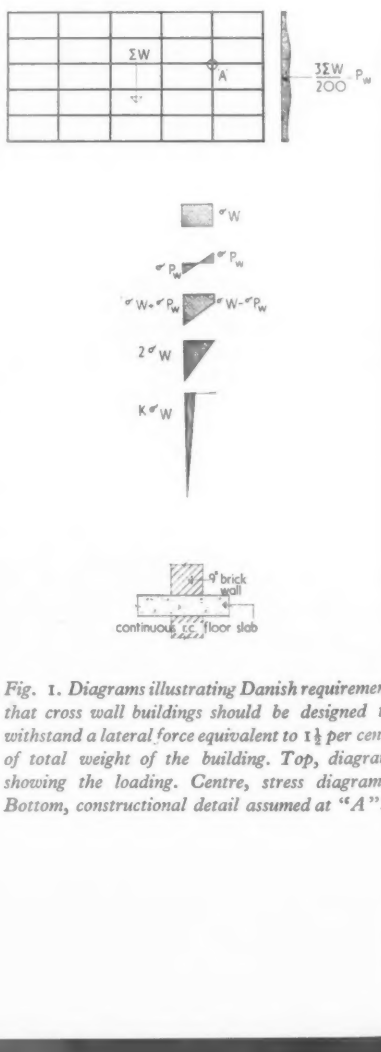


Fig. 1. Diagrams illustrating Danish requirement that cross wall buildings should be designed to withstand a lateral force equivalent to 1½ per cent. of total weight of the building. Top, diagram showing the loading. Centre, stress diagrams. Bottom, constructional detail assumed at "A".

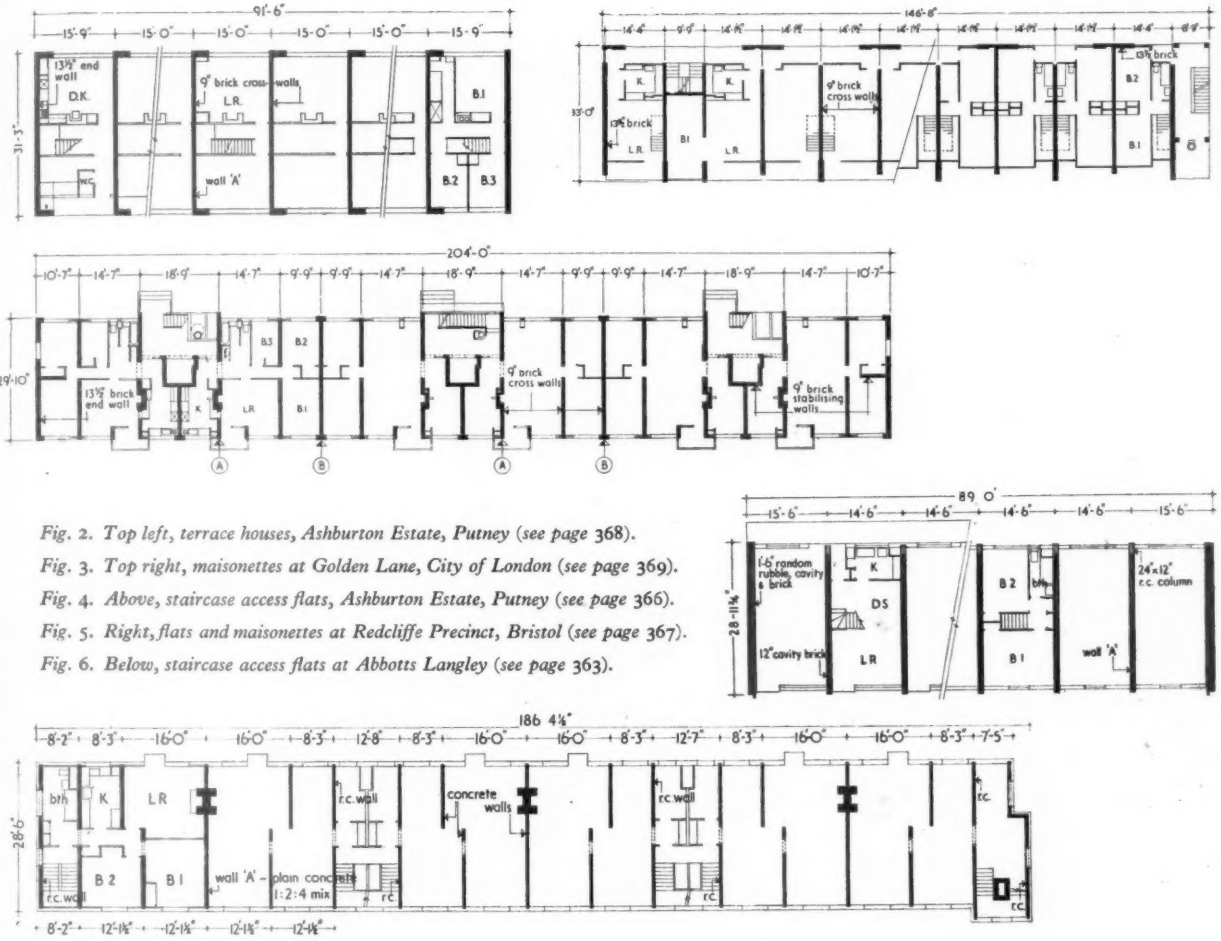


Fig. 2. Top left, terrace houses, Ashburton Estate, Putney (see page 368).
Fig. 3. Top right, maisonettes at Golden Lane, City of London (see page 369).
Fig. 4. Above, staircase access flats, Ashburton Estate, Putney (see page 366).
Fig. 5. Right, flats and maisonettes at Redcliffe Precinct, Bristol (see page 367).
Fig. 6. Below, staircase access flats at Abbotts Langley (see page 363).

ALTERNATIVE METHODS FOR ENSURING STABILITY

The different methods, mainly empirical, which have been used in practice in this country by a number of architects and engineers to ensure overall stability may be seen from a study of the accompanying illustrations. They may be summarized as follows:

1. To use a staircase, lift tower or similar element having walls at right angles to the cross walls as a buttress, assumed to take all the lateral forces (Fig. 2).

2. To provide a longitudinal wall, or walls, within the plan shape to give the same effect (Fig. 3).

3. To return the ends of the cross walls in the shape of I-beams or Z-beams on plan (Fig. 4).

4. To construct certain piers and walls, or joints between walls and floors in reinforced concrete (Fig. 5—although this scheme has buttressing staircase walls as well).

5. To use the cladding and longitudinal beam system as bracing (Fig. 6).

The extent to which brick cladding may be regarded as providing adequate longitudinal stability to a cross wall block is a matter which many times has been the subject of controversy between designers and byelaw authorities. Obviously the question is very much affected by the number and extent of openings in the external walls which are assumed to be panels carried on edge beams at each floor level and by the effectiveness of ties between these walls and the ends of cross walls.

A block of cross wall flats up to, say, five storeys in height with brick-cavity-clinker cladding, with or without deep edge beams, but assuming in-situ reinforced concrete floors and a minimum length of five bays or more is stable within its own structure without the addition of buttressing walls. That is to say the cladding will take up any reasonable lateral forces in excess of those which the normal design criteria of no tension would permit to be taken by the cross walls themselves (see Fig. 20). This assumes that workmanship is reasonable, that there are no unusual site features such as steep contours, that there is adequate bonding of the external walls to the cross walls (for example Fig. 21), and that the openings are reasonably limited—either normal "punch-hole" type windows (Figs. 18 and 19) or a wide return of external wall adjacent to each cross wall for each full storey height (Fig. 13).

In terraces of three-storey houses at the Ashburton Estate, Putney (Fig. 16) the LCC Architects have obtained a direct solution of the stability problem by returning the ends of the cross walls, which at the same time, because of the shorter spans on the faces of the building, reduces the depth of the edge beam required for supporting the external wall. This device is even more effective in a block of flats requiring solid floors (Fig. 22) (centre) as the external wall can be supported directly by the slab without the need for edge beams.

DESIGN OF CROSS WALLS

The design of unreinforced cross walls in brick, block or in-situ concrete, presents no special difficulties if the requirements of British Standard Code of Practice CP 111 (1948) " Structural Recommendations for Loadbearing Walls " are followed.

Determination of the stresses in the wall should be made in the normal way assum-

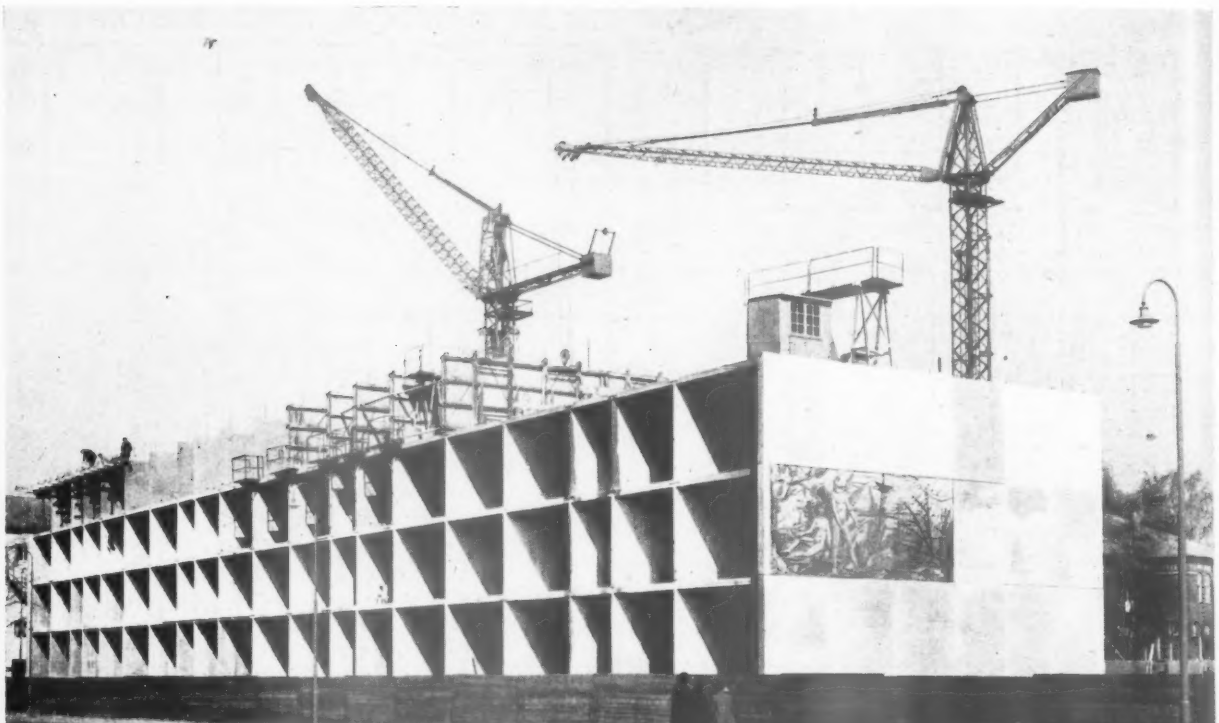


Fig. 7. Four-storey cross wall flats at Malmo, Sweden, with unreinforced in situ *concrete walls 4½ in. thick. The whole of this structure was erected by 15 men and two mobile tower cranes. (see* AJ, *Jan. 28, 1954.)*

ing the wall is an elastic membrane. This assumption is valid provided no primary tensile stresses occur.

The stress distribution in walls due to concentrated loads at or near the ends should not be determined by assuming the the load is dispersed through an angle of 45°, as this assumption could lead to results which do not give a straight line stress distribution. This would not be in accord with sound engineering practice, and could lead to an uneconomic use of materials.

In most cases the centroid of the applied loading to the wall will not coincide with the wall centroid, and therefore the stress distribution in the wall must be calculated taking into account the moment of the load due to this eccentricity. When all the cross walls in a block are loaded, more or less, in a similar manner the calculated stress increases due to the eccentric loading will certainly occur. If only some walls in a block are eccentrically loaded and others are concentrically loaded and provided the floor slabs are cast in-situ reinforced concrete or can otherwise act as deep beams in their own plane, the sum total of the eccentric or over-turning moments should be shared between all the walls in proportion to their stiffness. Consequently, the actual wall stresses are less than they appear to be when each wall is considered as a separate element.

In other words, the elements making a structure must be considered as parts of a three-dimensional framework and the stress analysis carried out accordingly. Separate consideration of individual elements without regard to the inter-action of other members of the framework can be misleading and generally results in either uneconomic or sub-standard structural systems.

When load is applied to cross walls through beams, undoubtedly stress concentrations do occur at the support points but no special precautions are necessary at these points, provided there is a reasonable factor of safety on the crushing strength of the material forming the wall and also that no high secondary tensile stresses are set up, although as these stresses would normally be across the wall some reinforcement in the wall joints should be sufficient to deal with them.

Other than to deal with such secondary stress there is no case for introducing reinforcement into brick or block cross walls. Reinforcement to assist in the primary task of carrying normal loads must be vertical and obviously cannot be introduced into a brick or block wall without some special provisions, which usually cost more than the additional load carrying capacity is worth.

WALLING MATERIALS

For the reasons set out in our introductory paragraph the LCC Architects' Department has adopted the cross wall system of construction generally for housing during the past few years. It is found that in blocks of flats with few holes through the walls 9-in. fletton brickwork is normally adequate for walls up to four or even five storeys in height if the spans are short, and for three storeys even with wide spans of 18 to 20 ft. (see Figs. 13, 14, 15, 19).

The Bristol City Architect (Fig. 15) has used brick cavity cross walls up to five storeys, filling the 3 in. wide cavity with 1 : 2 : 4 concrete for the lower two storeys. This seems a rather complicated

form of construction, particularly since reinforced concrete columns have been introduced on the access gallery side. From a structural point of view a 9-in. common brick wall with an end pier also in brickwork, would, in normal circumstances, be adequate.

Sam Bunton, of Glasgow, has used the Wilson block (Fig. 8) as a means of providing permanent shuttering to a concrete wall which can be either plain or reinforced. The block, unfilled, can also be used to build structural cross walls in blocks of flats up to 5 storeys in height. It is a precast concrete block, approximately 18 in. by 9 in. by 9 in., consisting of two 2-in. thick leaves held together with ties across a 5-in. cavity, with nailable concrete nibs on the outside for plaster board fixing. The bond between the precast elements and the in-situ filling is assumed to be complete and the precast units are taken into account in calculating the strength of the wall. Tests carried out

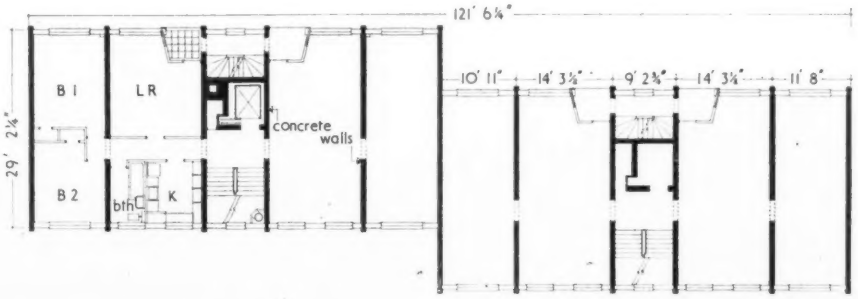
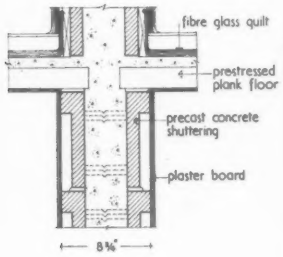
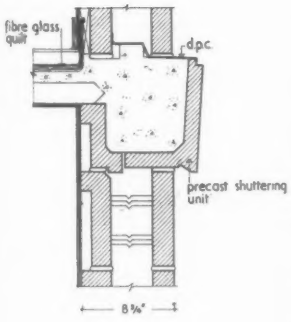


Fig. 8. Eight-storey block of staircase access flats at Clydebank. Architects: Sam Bunton and Associates. Consulting Engineers: F. A. Macdonald and Partners. Right, plan. Below right, general view. External walls are also made of precast cavity blocks with a textured finish. Below, joint between cross wall and prestressed floor. Bottom, edge beam at joint between external walls and prestressed floor. In this block the walls are lightly reinforced, but the system is such that in lower blocks the cavities of the cross walls may either be left void or filled with plain concrete according to the load.





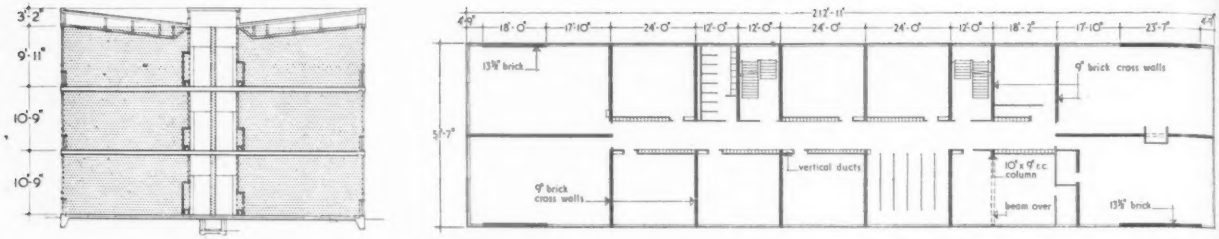
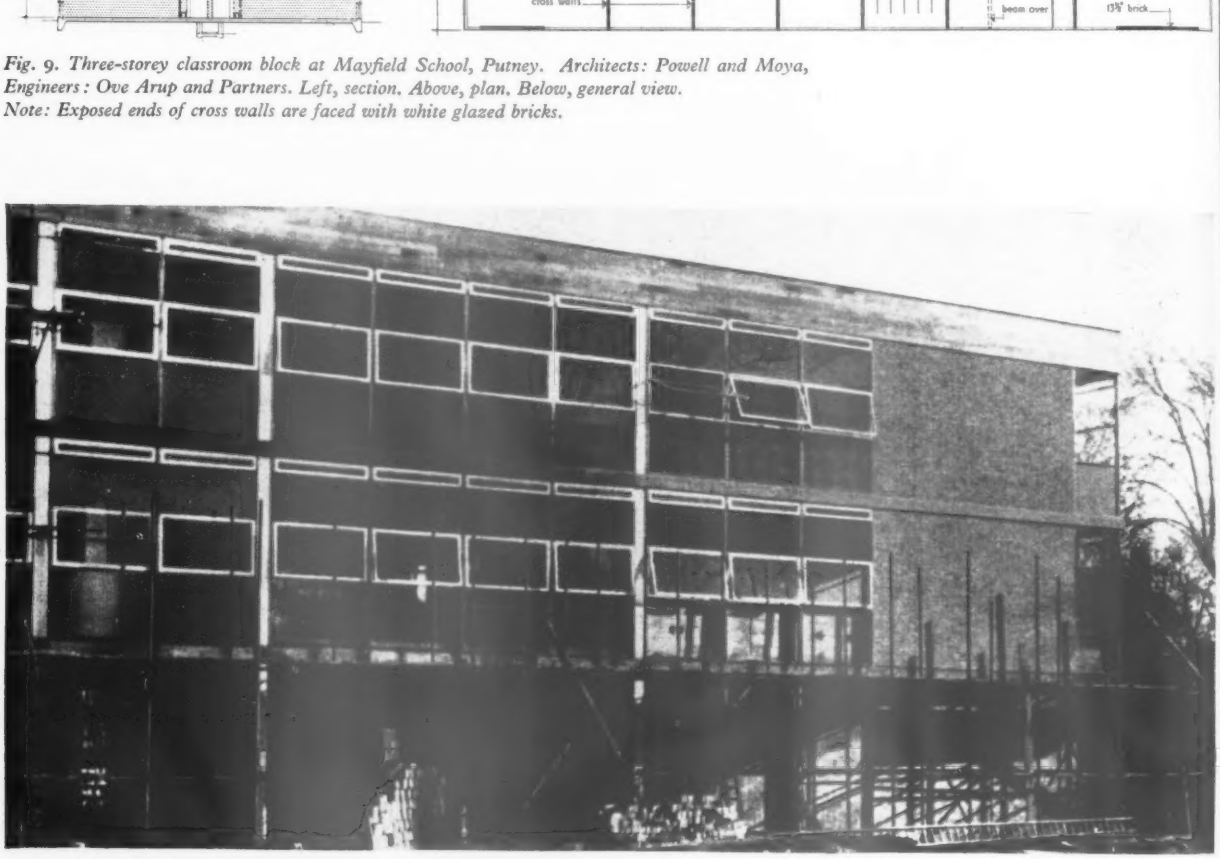


Fig. 9. Three-storey classroom block at Mayfield School, Putney. Architects: Powell and Moya, Engineers: Ove Arup and Partners. Left, section. Above, plan. Below, general view.
Note: Exposed ends of cross walls are faced with white glazed bricks.



in practice show that this assumption appears to be reasonable.

In the design of Larkfield Hospital (Fig. 11) it was decided to use blocks of structural grade concrete. By doing this advantage could be taken of clause 303(d) of BSCP 111, which allows the basic stresses on blocks with a height of two or more times their thickness to be increased to twice those normally allowed for bricks having the same crushing strength. At the same time in Scotland, block walls of this type are widely used and therefore the operatives would not have the usual prejudice which exists against the use of concrete blocks in England.

Unfortunately when construction commenced supply difficulties arose, and it was impractical to proceed using the blocks. The block walls were, therefore, replaced by plain concrete walls poured in-situ and according to the contractor no additional cost was incurred by this substitution. This experience confirms the view held by the authors that plain concrete in-situ walls can be at least as cheap as comparable walls built in brick or block and in any case allow the building process to be rationalized to a much greater degree by the use of mechanical plant such as the mobile tower crane (see also Fig. 7).

To our knowledge the Abbots Langley scheme (Fig. 10) was the first to exploit thin structural concrete walls without the normal reinforcement. For local stability reasons starter bars for the plain concrete walls were left projecting from the floor slabs. The end walls of the block were reinforced to ensure overall stability and reduce the bending moments in the end bays of the floor slabs. The purpose of this block was to enable the BRS to carry out a series of comparative measurements of the sound insulation value of various types of construction. The unusual shape for the concrete roof was dictated by the need for a throughway above ceiling level to facilitate these measurements. The brick flues were built after the main construction and are carried at each floor level by the slab.

WALLING SPECIFICATION

Having worked out the theoretical stresses in the walls the architect or engineer is faced with the problem of specifying his bricks or blocks, or his qualities of concrete, in such a way that the walls are simple to build. If the attempt is made to translate academically theoretical stresses in the wall too directly into strengths of brickwork, a great many different kinds of bricks will be required between foundations and roof and many different mixes of mortar, and this will prove uneconomic.

To change mortar mix too frequently

involves considerable supervision on site. It is wise not to have different mixes side by side in the same storey height, if this can be avoided, and one or two mixes (for example, 1 : 1 : 6 and 1 : ¼ : 3) should suffice for all normal requirements of most buildings.

Bricks are best specified within certain grades according to their ultimate compressive strengths. The range of prices for bricks of general availability tends to fall into groups which correspond fairly closely to these grades. The strength to be specified should be the minimum "average crushing strength" of the grade nearest above the theoretically calculated requirements. These grades are as follows:

TABLE I. GRADES OF BRICK MINIMUM CRUSHING STRENGTHS

1st grade	Minimum "average crushing strength"	10,000 lb./sq. in.
2nd grade	" " " "	7,500 "
3rd grade	" " " "	5,000 "
4th grade	" " " "	4,000 "
5th grade	" " " "	3,000 "

The minimum "average crushing strength" is the average strength of a random sample of 12 bricks, tested in accordance with BS 1257.

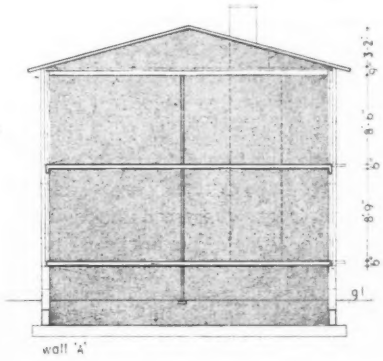
Since ordinary flettons will normally easily stand up to test as 5th grade there is little point in specifying any brickwork to be of lower strength than this.

Although the manufacturer's opinion may be taken as a guide it should never be taken as final. Tests on random samples of bricks should be made on every job using calculated brickwork.

Regarding the concrete strengths required for plain concrete cross walls, because the thickness of the walls is not generally determined primarily by the loading condition but by other functional requirements the quality of the concrete can usually be safely reduced to the minimum acceptable by authorities for structural purposes. In most cases this is a nominal 1 : 2 : 4 mix. If the contractor is able to exercise the necessary quality control of the concrete it is evident that the normal crushing strength requirements for structural grade concrete in walls could be reduced. Unfortunately with the prevailing competitive contract system one cannot be sure when designing that these conditions will obtain on the site. Consequently it is only in special cases that advantage can be taken of this possibility.

SPACING OF CROSS WALLS

It is desirable that the cross walls should be spaced equally, or at regularly repeated



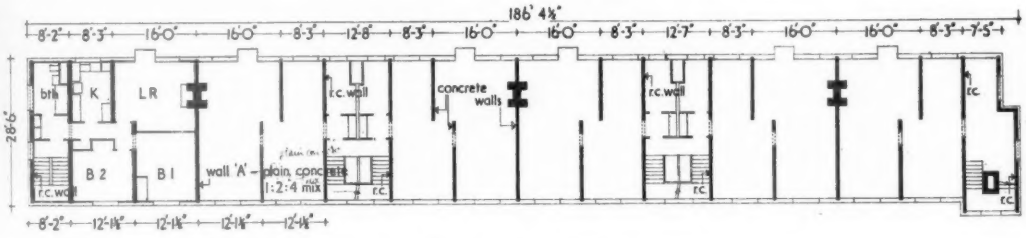
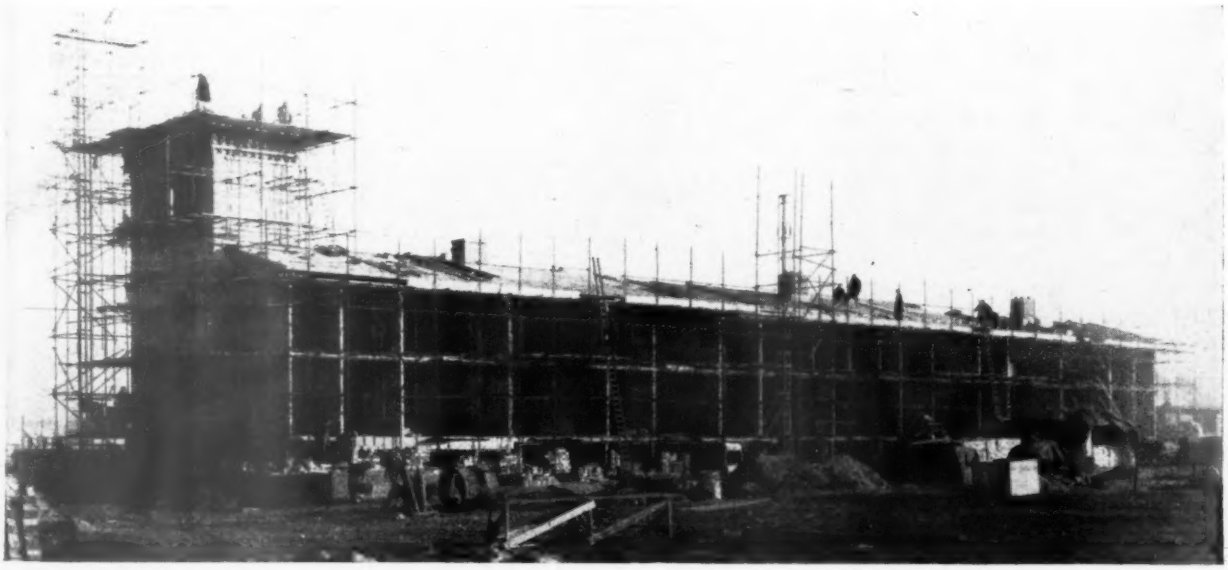


Fig. 10. Staircase access flats at Abbotts Langley. Architects: Research Staff of B.R.S. Engineers: Ove Arup and Partners. Above, plan. Note: the 6-in. cross walls are built of in-situ 1:2:4 *concrete, unreinforced. Above, right, section. Below, general view of work in progress.*



intervals, along the building. If this can be done, economies can be made both in the drawing office and on site in the standardization of a limited number of repeat dimensions for floors (spans, thicknesses and reinforcement) for formwork and for cladding units (if other than brick is used). The spacing of walls can be anything between 10 ft. and 18 ft. without varying the cost of the structure by more than plus or minus three per cent. This is shown diagrammatically in Fig. 12. It is confirmed in the authors' experience by a contract which was negotiated with a given firm of floor sub-contractors for a block of flats in which the spans were around 18 ft. centre to centre. On the basis of a previously agreed schedule, related, however, to a block of flats with floor spans averaging 11 ft. 6 in. centre to centre, the firm put in a price which appeared to be extremely high. The quantity surveyors concerned took out and priced the value of the brickwork in both schemes, and the costs of brickwork plus structural concrete in both blocks was found to be almost identical.

In Fig. 12, for a theoretical flat of given constant area the cost of cross walls and of floors has been taken out for various spacings of cross walls between 10 ft. and 20 ft. Obviously with wider frontage flats one has the structural alternative of dividing the flat into bays or spanning the full width in one, and these two alternatives are shown in the diagram.

Although the cost of structure remains fairly constant between the above limits, the cost of cladding increases directly in proportion to the frontage. This is offset to some extent by the decreasing cost of internal partitions in wide frontage plans, since a greater length of the room walls consists of external walling, but the cost of cladding is normally 3 to 4 times the cost per foot run of internal partitions.

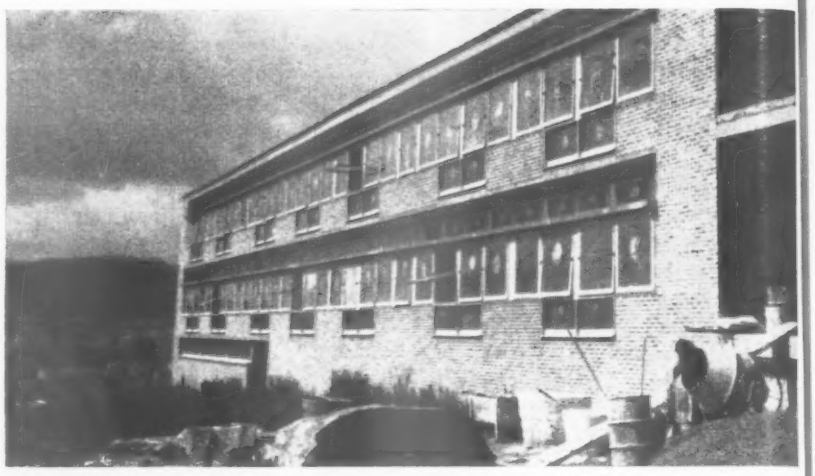
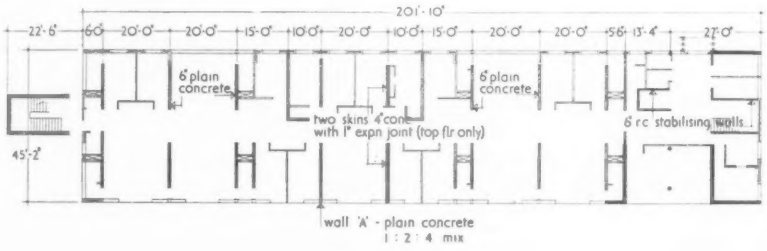
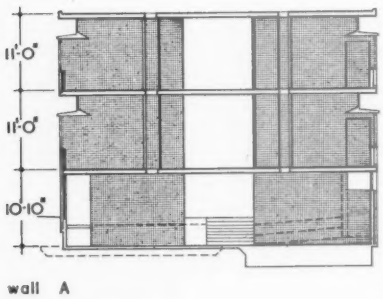


Fig. 11. Ward block, Larkfield Hospital, Greenock. Architect: R. Llewellyn Davies. Engineers: Ove Arup and Partners. Above, general view. Below left, section. The 6-in. thick cross walls are built of in-situ 1:2:4 *concrete, unreinforced. (They were originally designed to be made of precast concrete blocks but supply difficulties led to their being built* in-situ). *Below, plan.*





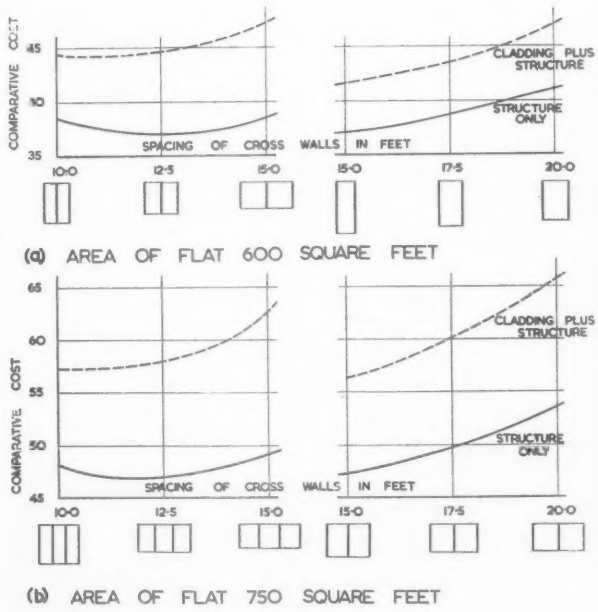


Fig. 12. Diagram showing the effect on the cost of cross walls, floors and cladding of different spacings of the cross walls between approximately 10 *ft. and* 20 *ft. The left-hand graphs show theoretical flats of assumed constant areas* 600 *ft. and* 750 *ft. respectively, divided into short spans (two or three bays); the right-hand graphs show them divided into wide spans (one or two bays). The spacing of walls can be anything between* 10 *ft. and* 18 *ft. without varying the total cost of the structure by more than* 3 *per cent. either way. Beyond these limits total cost of structure increases rapidly.*

The above takes into account the cost of edge beams where necessary, but also still holds good for light-weight cladding. From the point of view of structure as well as of cost, there is no advantage to be gained, except perhaps in the case of abnormal foundations, in introducing intermediate cross walls up to a frontage of about 18 ft. Beyond this distance intermediate cross walls should be introduced.

On the other hand, the total cost of cladding, including windows, represents on average only about 5 per cent. of the total cost of a normal five-storey block as against thirty per cent. represented by the structure. However, assuming a theoretical flat costing £2,000, this is sufficient to represent a difference in the cost of cladding from £70 (3½ per cent.) for a flat of 10 ft. frontage to £140, (7 per cent.) for a

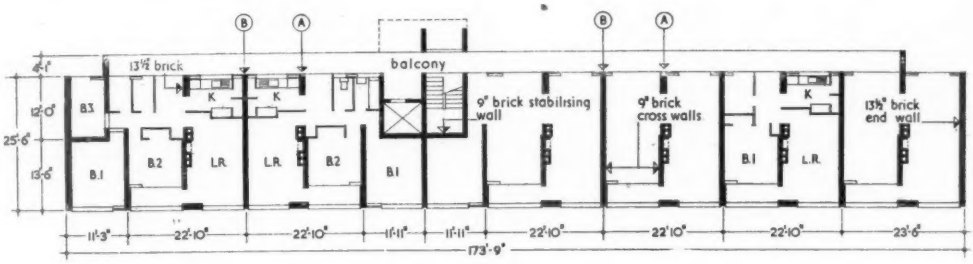
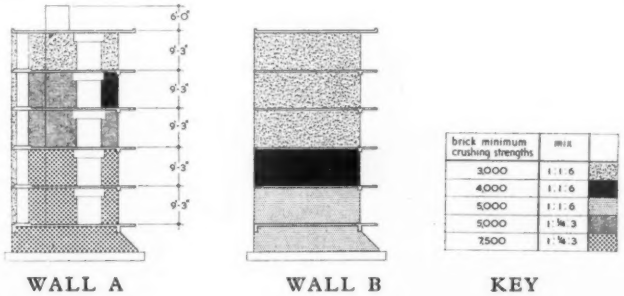
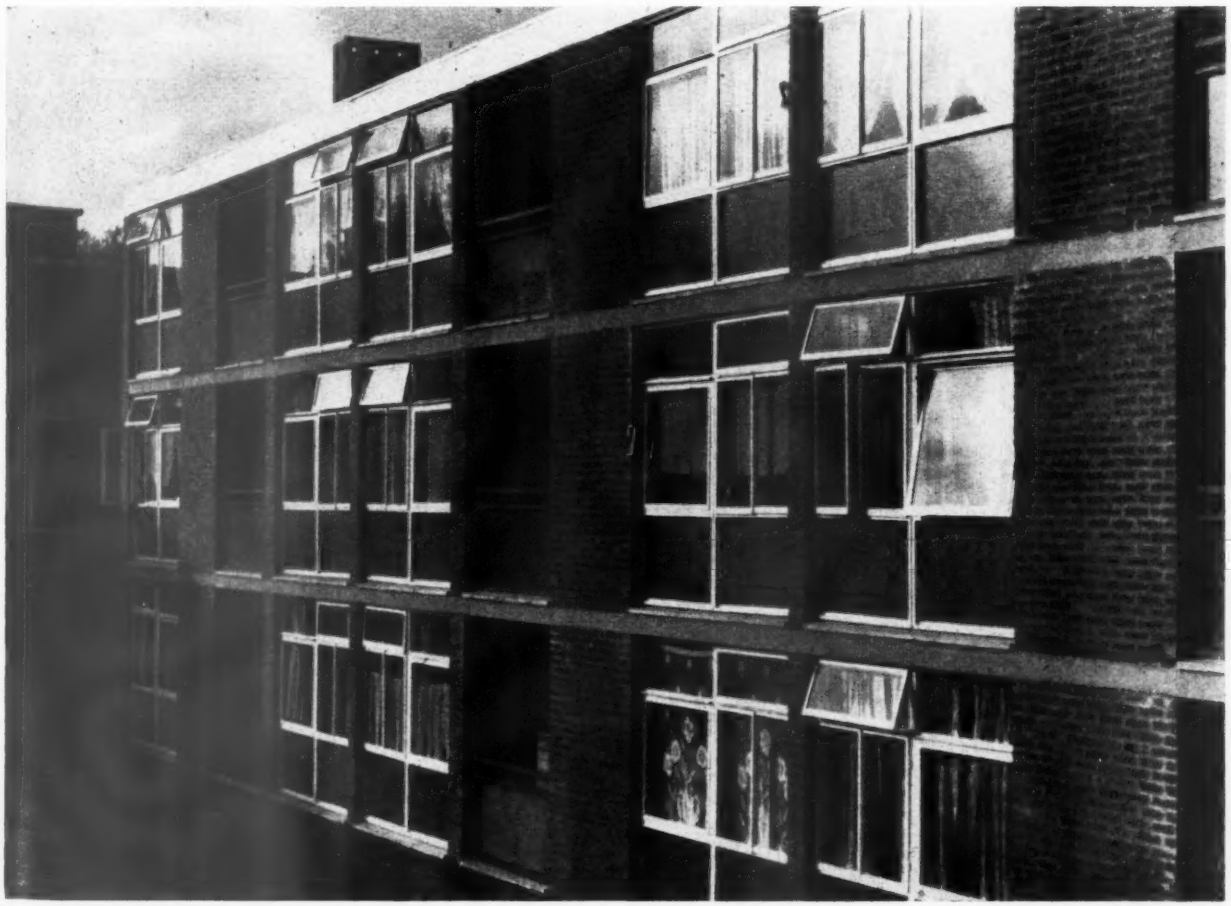


Fig. 13. Five-storey block of LCC balcony access flats, Ackroydon Estate, Wimbledon. J. L. Martin, Architect to the Council: J. Whitfield Lewis, Principal Housing Architect: J. H. Humphreys, Senior Structural Engineer. Design of r.c. work by British Reinforced Concrete Engineering Co. Above, plan. Floor of access balcony is cantilevered over edge beam. Walls on this side thickened to 13½ in. Compare with staircase access block in Fig. 14 (overleaf). Right, sections showing design of the interrupted and uninterrupted cross walls. Below, photograph of three-storey block for the same authority at Ackroydon Estate, Wimbledon, which has the same plan form.





flat of 20 ft. frontage. The conclusions from this must not be too strictly interpreted, since there are greater difficulties normally in planning narrow frontage dwellings than in planning wider ones, and a saving in cladding may well be offset by complicated partitioning and services or floor space receiving inadequate light. However, bearing all this in mind, there is a strong economic argument—deriving from the cost of external cladding—to reduce frontages to a minimum.

DESIGN OF FLOORS

From the point of view of overall stability, it is obvious that in-situ reinforced concrete floors give the greatest rigidity. To improve the rigidity at the junction of walls and floors, vertical reinforcement at the joints is a possibility but, so far as we know, this has not yet been used with ordinary brick or block walling. It would inevitably cause interruption to normal bricklaying, and would adversely affect the economy of such a wall compared with a concrete wall.

Certain of the precast floors would be definitely inadvisable with this form of construction, but many of them now make provision for casting the joint with the

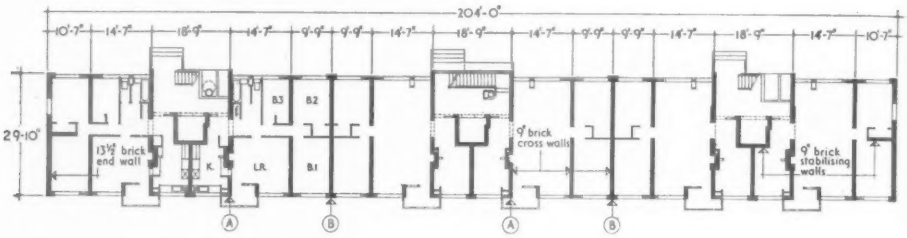
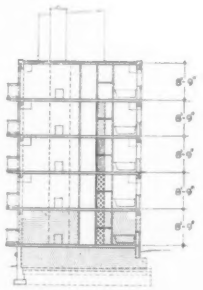
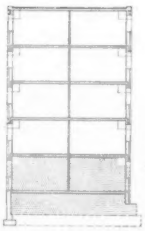


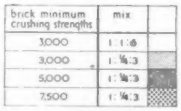
Fig. 14. Five-storey block of LCC staircase access flats, Ashburton Estate, Putney. J. L. Martin, Architect to the Council: J. Whitfield Lewis, Principal Housing Architect: J. H. Humphreys, Senior Structural Engineer. Typical straightforward application of cross wall construction to a block of staircase access flats. No openings through walls except towards the middle. Top right, plan. Right, sections showing strengths of brickwork in the cross walls. In effect the cross walls are in fletton brickwork for the full five-storey height with the exception of a pier next to the opening in wall A. Below, general view.



WALL A



WALL B



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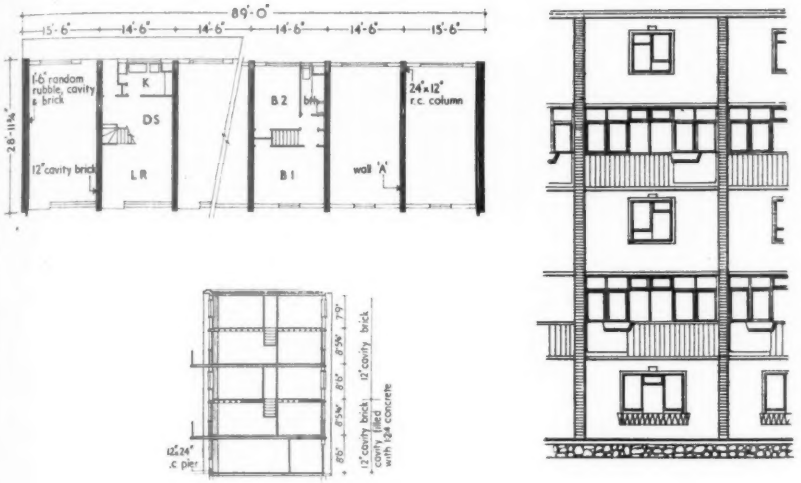


Fig. 15. Five-storey block of mixed flats and maisonettes at Redcliffe Precinct, Bristol. J. Nelson Meredith, City Architect. Top left, part plan showing upper and lower floors of maisonettes. The cross walls consist of two 4½-in. skins of fletton brickwork, with a 3-in. cavity between filled with 1 : 2 : 4 concrete for the lower two storeys. Note, however, the introduction of reinforced concrete columns to carry the balcony loading (compare brick piers in Figure 13). Below, left, section showing wall A. The bricks have a crushing strength of 3,000 p.s.i. Mix used 1 : 1 : 6. Left, elevation of one bay.

wall almost entirely in-situ, and their effectiveness obviously is in direct proportion to the extent to which this joint can be made rigid. The position with regard to hollow tile floors is similar.

In the case of maisonettes, alternate timber floors fulfil the normal requirements for floors within a dwelling, but if these are used certain structural problems arise, which are considered later as a special case.

COMPOSITE CONSTRUCTION

The Building Research Station is carrying out a general study of the composite action and stiffening effect of floors and walls in multi-storey buildings. One particularly interesting aspect of this work is their investigation into the interaction of reinforced concrete beams supporting brick walls. It has been found that the wall and beam do act together to the extent that the effective depth of the beam is equivalent to 0·6 of the span or the height of the wall whichever is the lesser. One result of applying this research in practice is that it is possible more economically to use column supports at the ground floor level in place of the brick walls in order to achieve a clear span. Similarly if edge beams are needed to support brick cladding the design of the edge beams can be based on the assumption that the wall and beam will act together.

LIMITATIONS IN PLANNING

The inherent planning problem in cross wall construction is the need for simplification and repetition of the basic structural unit. From the structural point of view the ideal plan has uninterrupted cross walls spaced at equal intervals along the building. The system is obviously unsuited for office buildings and others which require flexibility in the division of floor space. It is best suited to housing—in which the plan forms are repetitive and the space divisions reasonably permanent, with high standards of sound insulation and fire resistance. Fig. 9 shows an intelligent and extremely economic application of the system to a school classroom block. Fig. 11 shows the system applied to a hospital ward block. It is obvious from the latter that the structure has lost some of its simplicity, as applied to housing, and that the engineers have exercised a good deal of ingenuity to accommodate the plan requirements.

The ideal plan form for the system is a block of maisonettes, but this in turn poses its own peculiar problems and is dealt with later.

For blocks of flats the system favours "staircase access" as a type of plan rather than "balcony access," because with the former it is easier to avoid heavy concentrations of load due to cantilevers; and doorways made through structural cross walls tend on the whole to come within the middle third of the walls and not towards one end. Comparison in this respect is interesting between the Ashburton staircase access block (Fig. 14) and a balcony access block by the same authority on the Ackroyden Estate (Fig. 13). The structural pattern of the latter clearly shows the difficulties—load concentrations in piers and short walls necessitating variations in brickwork quality and mortar mix—which arise if the structural problem is not adequately considered at the planning stage. In comparison the structural systems for the staircase access flats, (Fig. 14) or for the maisonettes (Figs. 17 and 19) have an elegant simplicity which can lead to a rationalization of the building process and all the economies which may be obtained thereby.

This does not mean that the system is unsuitable for balcony access flats but that it imposes a discipline on the architect, ignorance of which leads to complicated structure and considerable extra cost. For example, holes should not be cut through cross walls within several feet of the end, for which reason a recessed private balcony to a flat is better placed with the doorway at the back rather than the side. Again cantilevers for projecting balconies are quite possible, and structurally economic, provided there is a good stretch of wall behind, without voids, to ensure their stability. Ducts and flues should be kept on the face of walls generally. If a wall is fully stressed (and in extreme cases the joints should be grouted up), electric services, water pipes and so on should not be chased into the walls but should be placed in ducts on the face of the wall. This particularly applies to heavily loaded parts of walls adjacent to openings. In any case, undue stress concentrations in any structural system should be avoided if it is at all possible.

Some authorities, for social reasons, follow a deliberate policy of trying to mix-up in the same block of flats a considerable variety of different kinds of accommodation. This is difficult in any system of construction—and particularly as regards vertical services (sanitary plumbing, and hot and cold water)—but most of all in cross wall construction.

The system generally favours a block of all one type of accommodation or at most with a minor variation such as switching a bedroom from one flat to its neighbour, or (see Figs. 15 and 17) a block of maisonettes with flats on the ground floor, services from the latter going out independently.

SOUND INSULATION AND FIRE RESISTANCE OF CROSS WALLS

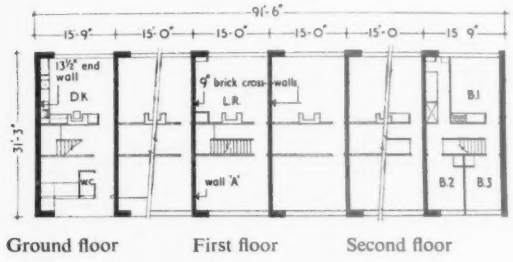
In blocks of flats a 9-in. brick party wall or 7-in. concrete wall is normally accepted as a reasonable standard of sound insulation between flats (see BRS report, RIBA Journal, July, 1954). It is more than adequate for fire-resistance under any byelaws. The provision of this degree of sound insulation between flats is one of the biggest difficulties in the way of the economic development of light frame and panel construction for housing. One has usually to put back into the light frame a party wall which in weight and cost is virtually equivalent to a 9-in. brick wall. The cross wall method of construction meets the functional requirements of sound insulation and fire-resistance intrinsically.

The BRS report referred to above reveals that, as a result of a survey of some thousands of occupied houses, 11-in. cavity party walls do not appear in practice to have noticeable advantages over 9-in. solid party walls. In flats the party floor is normally a worse transmitter of noise nuisance than the party walls. Therefore there seems little point in using a cavity party wall if (*a*) it can be easily outflanked by noise through the floor, and (*b*) the difference between it and a 9-in. solid wall is of such a low order of magnitude that the majority of people do not notice it anyway.

The interruption of the brick or block wall by the concrete party floor appears to have a slight but definite effect on the transmission of sound down the wall. To this extent the brick or block wall is slightly better than a concrete wall monolithic with the floor. There appears from experience to be little value in placing felt pads or similar insulating media, in the wall, between the concrete and the brickwork at each floor level.

MAISONETTE CONSTRUCTION

From most points of view the maisonette is the ideal form of accommodation for cross wall construction (see Figs. 15, 17, 18 and 19). Frontages are much smaller than those of flats and correspond reasonably well to the economic spacing of



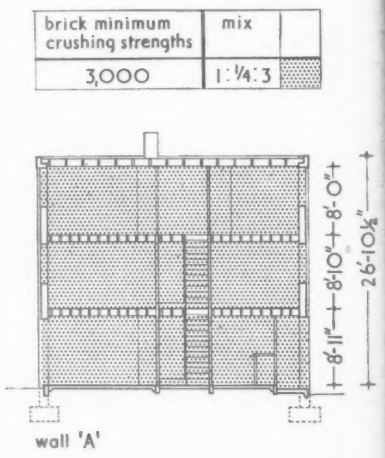


Fig. 16. Three-storey block of terrace houses at the LCC Ashburton Estate, Putney. J. L. Martin, Architect to the Council: J. Whitfield Lewis, Principal Housing Architect: J. H. Humphreys, Senior Structural Engineer. Above, typical floor plans. Right, section and key. Below, general view.

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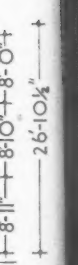

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ADHESIVES NATURAL RUBBER-BASED

The Architects' Journal Library of Information Sheets 511. Editor: Cotterell Butler, A.R.I.B.A.

L latex adhesive
LB latex-bitumen adhesive
LC latex-cement composition
RS rubber solution
RC rubber cement

note: the entry adjoining each item refers to the adhesive used to bond the material to itself –

e.g. glass to glass | LC |

SELECTION OF SUITABLE ADHESIVE.

NATURAL RUBBER-BASED ADHESIVES. Compiled from information supplied by The British Rubber Development Board.

12.N1 NATURAL RUBBER-BASED ADHESIVES

This Sheet describes rubber-based adhesives. The chart on the face of the Sheet serves as a guide to the selection of a suitable adhesive for bonding two materials together.

General

There are two main groups of natural rubber adhesive, latex adhesives and rubber solutions or cements. All are unaffected by changes in humidity and are not subject to attack by fungi or insects. They are particularly suitable for bonding materials with differing coefficients of expansion. The latex group includes the following:

Latex adhesives: Natural rubber latex consists of minute particles of rubber suspended in water and is in itself an adhesive. Latex adhesives vary in consistency from thin milky fluids to thick creams or pastes. They are non-inflammable.

Latex-bitumen adhesives: These consist of natural rubber latex added to bitumen emulsion to improve its adhesion and flexibility. The resulting adhesive composition is non-inflammable and non-toxic and may be applied cold to the surfaces to be joined. It has been evolved for bonding wood blocks, linoleum, tiles, etc., to wood or concrete.

Latex-cement compositions: Natural rubber latex is combined with Portland and/or high aluminous cement and aggregate to produce a strong adhesive for bonding porous and non-porous surfaces, e.g., glass, concrete, bricks. It is also an effective jointing material for pipes carrying corrosive effluents as the cement content is leached out of the surface of the adhesive by the acid and the rubber is left in the form of a gel which resists further attack. Latex-cement compositions are non-inflammable.

The second group consists of:

Rubber solutions: The term "solution" is usually given to lightly compounded rubber adhesives. These are usually solutions of raw rubber in an organic solvent. The solvents are normally inflammable, but non-inflammable types are also used: these, however, are toxic.

Rubber cements: The term "cement" is applied to a rubber solution prepared from raw rubber to which has been added certain chemicals and resins. These ingredients increase the strength and tenacity of the resulting rubber film. Cements may be used for filling as well as bonding.

Both solutions and cements may be combined with chemicals to vulcanise the rubber film.

Special rubber adhesives are available to withstand extremes of temperature, e.g. for use with under-floor heating systems.

Preparation of Surfaces

Concrete: The surface must be even, clean and free from laitance, oil, paint, etc. It should be completely and permanently dry. Old concrete that is cracked or worn should first be screeded with latex-cement composition to a thickness of $\frac{3}{16}$ in.

Granolithic, terrazzo, marble: The surface should be roughened to remove the glaze, or, alternatively, covered with latex-cement composition. Any brass strips should be removed.

Quarry tiles, bricks: Any dust and loose material must be removed and the tiles or bricks screeded with latex-cement composition or Portland cement mortar.

Timber: New wood must be clean and smooth; worn surfaces should be made true with latex-cement composition or plywood.

Metal, glass, plastic: The surface must be clean and free from grease, rust, paint, etc. Metal surfaces can be treated with a rubber-based primer.

Asphalt: Asphalt surfaces should be clean, even and hard.

Application

Many types of rubber-based adhesive will bond when the film of adhesive is dry so that treated surfaces, suitably prepared, can be pressed together and will instantly unite; pressing with a hand roller or similar article will complete the bond. With other types it is necessary for the adhesive to be wet when the surfaces are brought together. In these cases, should the adhesive dry out too rapidly, it can be reactivated by wiping the dry surface with a solvent. Almost any material can be bonded with rubber-based adhesive but it is essential that the most suitable type be selected. The chart on the face of the Sheet serves as a guide to this selection. In some cases a choice is given of adhesives that will prove equally effective for the particular application. Where special conditions are encountered a rubber adhesive manufacturer should be consulted. The materials listed in the table have been divided into rigid or flexible materials and subdivided into porous and non-porous types. The nature of the material in these respects determines the type of adhesion (i.e. mechanical or specific) most called for in the adhesive selected.

Precautions

Adequate ventilation is essential where rubber solutions or cements are being used.

Inflammable solutions/cements: These are subject to the provisions of the Petroleum Acts but are not dangerous if proper precautions are observed during use. They must be kept away from electric fires, burning cigarettes or naked flames. Even in adjoining rooms it is imperative that all flames be extinguished.

Non-inflammable solutions/cements: These are not subject to the provisions of the Petroleum Acts and there is no fire hazard. They must, however, be used with care as their vapours are toxic. They must not be used in badly ventilated places and must be kept away from naked flames, lighted cigarettes, etc., as the vapours thus produced may be injurious. It is advisable, where possible, to use an electric fan to increase ventilation.

Latex adhesives: The above precautions do not apply to latex adhesives. The liquid adhesive should not be allowed to come into contact with copper or brass, as these metals affect the life of the adhesive.

Compiled from information supplied by:
The British Rubber Development Board.
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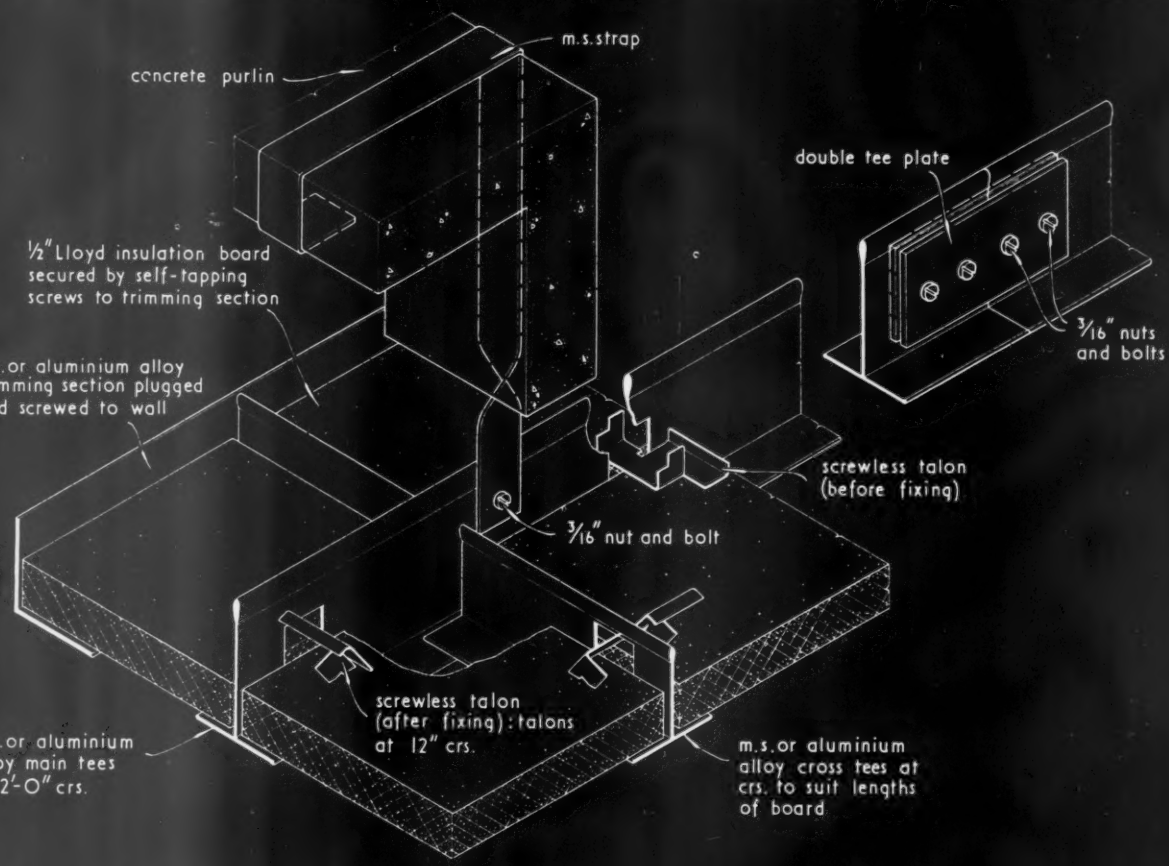
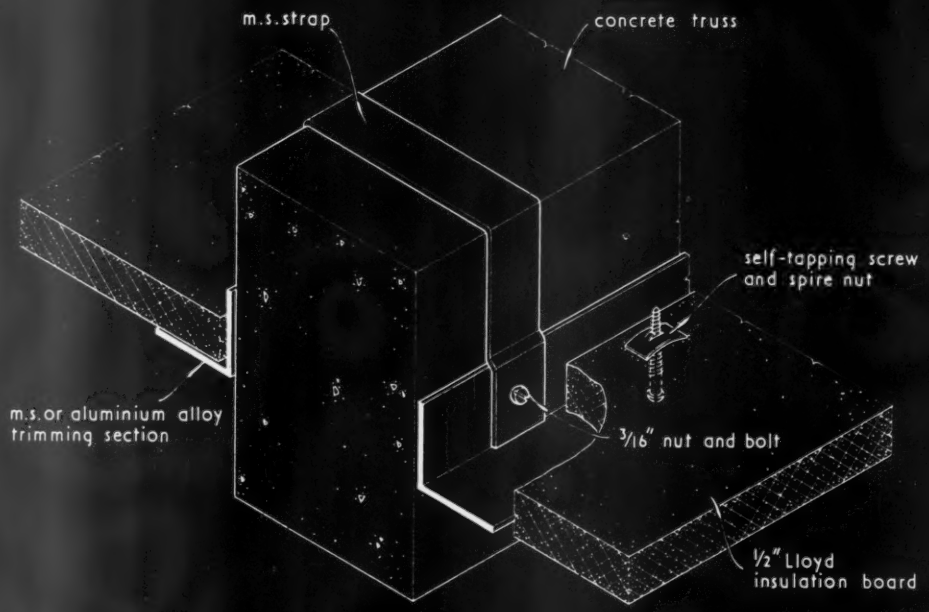

m.s.strap
concrete purlin
double tee plate
½" Lloyd insulation board secured by self-tapping screws to trimming section
3/16" nuts and bolts
m.s.or aluminium alloy trimming section plugged and screwed to wall
screwless talon (before fixing)
3/16" nut and bolt
screwless talon (after fixing): talons at 12" crs.
m.s.or aluminium alloy main tees at 2'-0" crs.
m.s.or aluminium alloy cross tees at crs. to suit lengths of board

GENERAL ASSEMBLY OF COMPONENT PARTS.



DETAIL OF FIXING TO CONCRETE TRUSS.

LLOYD L.T.2. SYSTEM OF BOARD FIXING. (Patent No. 684108)

Manufacturer: Bowaters Building Boards Ltd.

22.D5 LLOYD L.T.2 SYSTEM OF BOARD FIXING

This Sheet describes a system of board fixing consisting of Lloyd standard insulation board and tee section metal supporting and jointing members which may be of either pressed steel or aluminium alloy. It can be applied, without drilling, to roof or ceiling structures of steel, concrete or timber. The metal supports are easily fixed to rafters, purlins or beams of most shapes including those of angle, channel, tubular and rectangular cross section. The system is arranged so that the boards may be fixed either horizontally, to form a suspended ceiling, or parallel to the roof, as a lining. When used as a ceiling the boards and supports may be suspended from the roof structure on long hangers or from the ceiling or floor members. When used as a roof lining the system is suitable for fixing either below or above the rafters. The boards are secured to the metal supports by means of screwless talons which ensure freedom from vibration, disturbance by wind pressure, etc.

Components

Main tees: These are supplied in aluminium alloy or pressed mild steel in the sizes given below.
The aluminium alloy tees are in three standard sizes: No. 6 for 6 ft. 0 in. maximum spans in 6-ft. to 12-ft. lengths (increments of 1 ft. 0 in.); No. 9 for 9 ft. 0 in. maximum spans in 8-ft. to 12-ft. lengths (increments of 1 ft. 0 in.); No. 12 for 12 ft. 0 in. maximum spans in 9-ft. to 12-ft. lengths (increments of 1 ft. 0 in.).
The steel tees are in two standard sizes: 18 g. for 10 ft. 0 in. maximum spans in 7-ft. to 12-ft. lengths (increments of 1 ft. 0 in.); 16 g. for 12 ft. 0 in. maximum spans in 9-ft. to 12-ft. lengths (increments of 1 ft. 0 in.).

Cross tees: These are of aluminium alloy or sherardised steel and in standard lengths of 1 ft. 11¾ in.

Straps: The main tees are supported from the structure by twisted mild steel straps folded over the support and fixed to the main tees by means of nuts and bolts.

Screwless talons: These are sherardised steel pressings (pattern No. 2) which pass through slots in the main and cross tees and are fixed by a simple rotary movement.

Trimming sections: Aluminium alloy or sherardised steel angle sections for trimming boards at walls, openings, ridge, etc.

Insulation Boards

Lloyd standard insulation boards, ½ in. thick, 2 ft. 0 in. wide, and in lengths from 6 ft. 0 in. to 10 ft. 0 in. in 1-ft. increments, are used with this system.

Finish

Aluminium alloy components are supplied in their natural finish. All steel components are sherardised.

Sound Absorption

The ½-in. insulation board has an average sound absorption coefficient of 0·3.

Thermal Insulation

Thermal resistance: For calculating the U value of ½-in. Lloyd insulation board the thermal resistance can be taken as 1·43.

Thermal transmittance coefficients (U): The following tables give U values for various constructions with or without Lloyd L.T.2 system of board fixing.

Pitched Roofs

Roof covering	U (unlined)	U (with lining under purlins)
Corrugated asbestos cement ..	1·40	0·32
Corrugated protected metal ..	0·90	0·28
Clay tiles on battens and felt ..	0·70	0·26
Clay tiles on battens, felt and boarding	0·35	0·19

Flat Roofs

Roof construction	U (unlined)	U (with suspended lining)
6-in. reinforced concrete covered with asphalt	0·63	0·25
6-in. reinforced concrete with asphalt covering on 2-in. lightweight concrete screed ..	0·36	0·19
6-in. hollow tile or hollow concrete slab with asphalt covering	0·48	0·22
6-in. hollow tile or hollow concrete with asphalt on lightweight concrete screed ..	0·31	0·18
Metal decking covered with bitumen felt on ½-in. Lloyd insulation board	0·37	0·20

Intermediate Floors (Heat Flow Upward)

Floor construction	U (without ceiling)	U (with suspended ceiling)
6-in. reinforced concrete with 1½-in. granolithic finish ..	0·50	0·23
6-in. hollow tile or hollow concrete slab with 1½-in. granolithic finish	0·40	0·20

External Walls

Wall construction	U (without lining)	U (with lining clear of wall)
Corrugated asbestos cement ..	1·20	0·30
Corrugated protected metal ..	0·82	0·27

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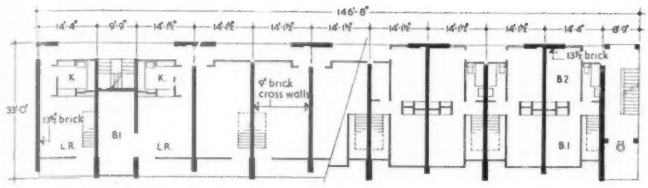


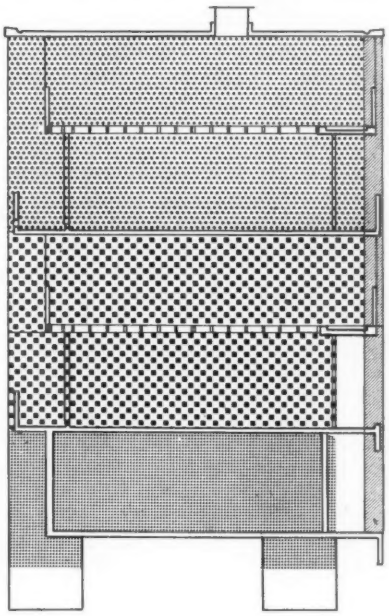


Fig. 17. Five-storey block of maisonettes at Golden Lane, City of London. Architects: Chamberlin, Powell and Bon; Engineers: Ove Arup and Partners. Above, lower and bedroom floor plans. Right, section and key.

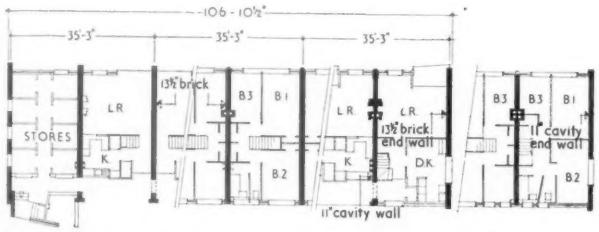
structural cross walls (10 to 18 ft.). This avoids having to cope with the problem of a pierced structural cross wall within the frontage of the dwelling.

The special problem posed by maisonette construction derives from the possibility of using timber intermediate floors and its effect on stability. The economic justification for the timber floor is that, in certain circumstances, it can achieve a saving of the order of £20-£30 per maisonette. The technical justification being the lower functional requirements for floors within dwellings, that is, (*a*) reduced imposed loading of 30 lb./sq. ft.; (*b*) half-hour fire resistance instead of one hour for a party floor, and (*c*) reduced sound insulation. The problem of supporting the access balcony—a problem which is common to balcony-access flats—still remains.

brick minimum crushing strengths	mix
1,500	1:¼:3
3,000	1:1:6
4,000	1:1:6
5,000	1:2:9

Key to strength of brickwork in typical cross wall.

If the intermediate floors are in reinforced concrete the overall stability of the block is assisted, since the walls are



Ground floor First floor Second floor end bay Third floor end bay

brick minimum crushing strengths	mix
3,000	1:¼:3

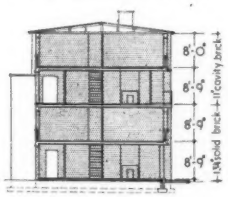


Fig. 18. Five-storey block of maisonettes, with flats at ground floor level, for Birmingham Corporation. A. G. Sheppard Fidler, City Architect; Sir Herbert Manzoni, City Engineer. Above, typical floor plans. Right, section and key. Below, perspective sketch.

stiffened by a rigid diaphragm at every floor level. This is quite practicable with maisonettes having a frontage of, say, 16 to 17 feet and over, because it is then possible to plan the internal staircase parallel with the floor span (Figs. 18, 19). In narrower frontage units, however, it is necessary to plan the staircase parallel to the cross walls. This calls for a beam structure to trim the opening and the economic answer is to utilize these beams both to stiffen the cross walls and to carry timber floor joists spanning parallel to the cross walls (Fig. 17). These beams can easily be precast and of such dimensions to allow incorporation within the depth of the timber floor and thus maintain an uninterrupted soffit.

In regard to the problem of supporting the access balcony, the recessed access balcony creates no problems with concrete walls, which can be partially reinforced to provide cantilevers. With brick or block walls, however, considerable difference of opinion exists between engineers as to the way in which to calculate the effect of cantilevers.

If a beam is cantilevered from the wall and the composite action of the beam with the supported wall is ignored, according to the elastic theory a high stress concentration will occur immediately under the beam at its point of support. Usually the allowable stress on the brickwork at this point is limited to 1½ times the general allowable stress in the wall, taking into account the slenderness of the wall. The result is that the stress immediately under the beam is limited to something like 300 lb./sq. in. and the beam required is usually much too big and long. This is unrealistic. A stress limit of 900 to 1,200 lb./sq. in. is not too unreasonable for a 4,000 lb./sq. in. brick, and although local yielding of the brickwork may occur, the stability of

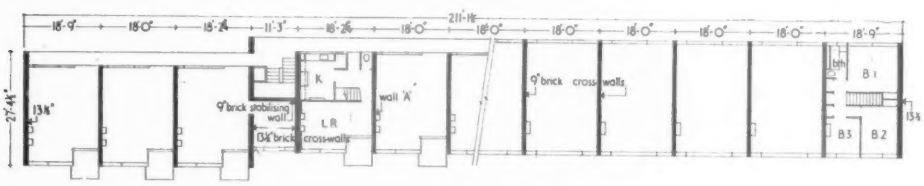
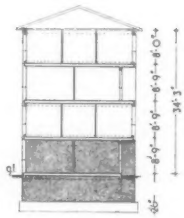


Fig. 19. Typical LCC four-storey maisonette block. J. L. Martin, Architect to the Council: J. Whitfield Lewis, Principal Housing Architect: J. H. Humphreys, Senior Structural Engineer. This plan type has been used both with reinforced concrete floors throughout (the stairs placed parallel to the span as shown above), and with timber intermediate floors (the stairs placed against the cross walls and parallel to them). Top left, lower and upper floor plans. Right, section and key. Note the use of spreader beams, upstanding or downstanding, at floor levels, in the cross walls, to tie back and distribute the edge beam and cantilever loads. Below, general view of maisonettes of this type at the Alton Estate, Roehampton.

brick minimum crushing strengths	mix	
3000	1:1:6	
5000	1:½:3	



the construction would not be impaired in any way.

On the other hand, consideration of the composite action of the beam and the supported wall would also lead to a somewhat similar structural solution, which would be more in accord with reality and, in any case, more acceptable both architecturally and constructionally.

The use of external columns (Fig. 23, left) to carry the walls over the balconies is a good alternative structurally to the use of cantilevers (Fig. 23, right) and architecturally can produce very good results. The problem of dealing architecturally with a "stuck-out" access balcony at second floor level in a four-storey block is one that is most difficult to solve satisfactorily. From the structural point of view, however, it is the simpler solution.

CLADDING

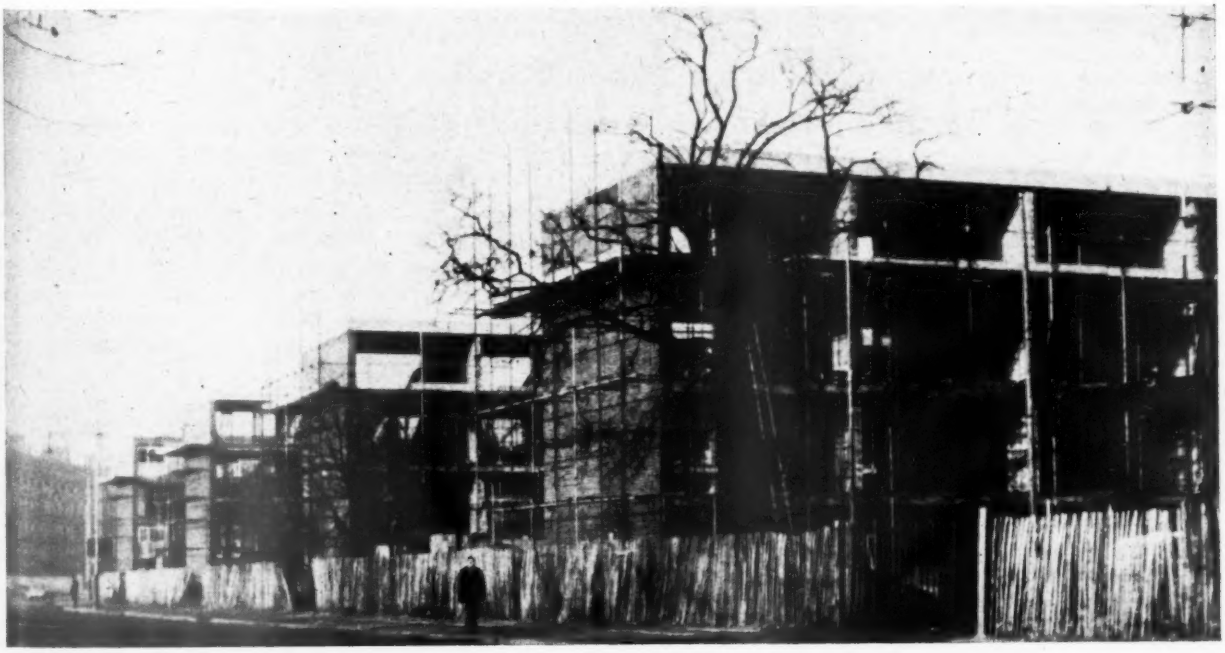
The effect of the cost of cladding on the spacing of cross walls has already been discussed above, and the effect of brick cladding on overall stability has similarly been referred to in the section dealing with the main structural problems. It is not proposed in this article to attempt to deal with all the intrinsic problems of lightweight cladding as such for these are common to framed structures in general. There remain the detailed problems of tolerances between cross walls and cladding, and of weatherproofing the ends of cross walls. There is also the large question as to what extent this system of construction has developed a characteristic form of architectural expression.

In brickwork the question of tolerances hardly arises. Brickwork in lengths over, say, 3 ft., is virtually dimensionally "fluid." An inch one way or the other makes no odds in the length of a cross wall, nor in the distances between them. If the cladding is to consist of some kind of metal or wood prefabricated panel infilling to be fitted over or between cross walls, the variations in the exact distances between them is a critical matter. In practice the distance between the ends of two cross walls may well vary up to $\frac{3}{4}$ in. in one storey height (in the height of a building these variations tend to balance out), and a minimum tolerance of $\frac{3}{8}$ in. either side should be allowed for panels designed to be fitted between them. In cases of poor workmanship these variations will be considerably more. The same tolerances (not better) may reasonably be expected between concrete walls, but in practice they may well be more. In the last year or two much study has been given by engineers and contractors to the design of storey height shuttering, which has resulted in considerable improvements over former practice in accuracy in the finish of in-situ concrete cross walls.

Alternative ways of weatherproofing the ends of cross walls are illustrated in Fig. 21. When the end of the wall is exposed for each full storey height it is not sound practice to rely on mastic, or a cover bead (normal detailing for a window reveal). The amount of brick face exposed, from the point of view of acting as an ordinary wall in absorbing water and later giving it off, is small in relation to the quantity of water from the impervious panels which it is likely to attract. To paint the reveals or sides of the cross walls with bitumastic paint is likely to drive the water deeper into the cross wall. The use of impervious bricks as a facing at the end of the wall is also no guarantee of weather exclusion since the joints will be vulnerable, and the stronger the cement mortar the more chance of capillary attraction through cracked joints. The more effective way of preventing damp penetration is to seal the end of the wall itself with an impervious membrane. Two ways of doing this are shown in Figs. 21b and 21c.

Fig. 22 shows three widely different architectural expressions of the same basic four-storey maisonette plan and cross wall construction. These sketches are taken directly from actual schemes produced by

Fig. 20. Typical example of cross wall building under construction. Four-storey maisonette blocks at Loughborough Road, Lambeth (see also frontispiece on page 356). J. L. Martin, Architect to the Council; J. Whitfield Lewis, Principal Housing Architect; J. H. Humphreys, Senior Structural Engineer.



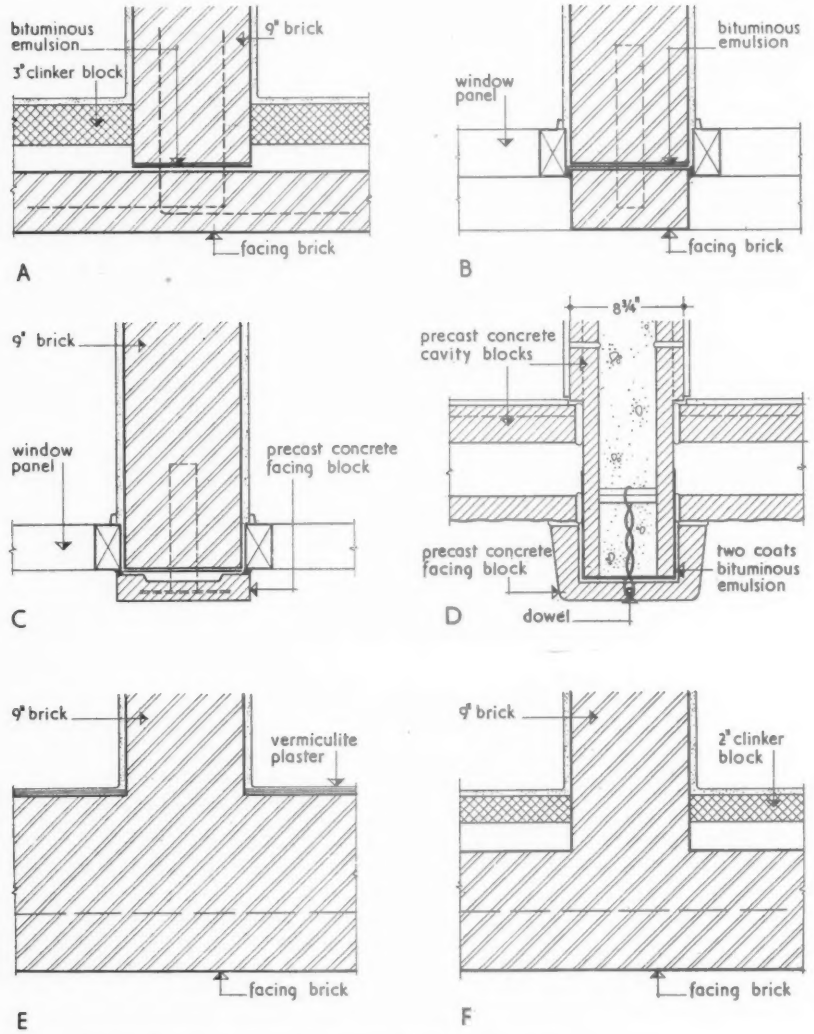


Fig. 21. Details showing alternative treatments of ends of cross walls:
A. Facing brick skin in storey heights tied back to cross wall with wire ties, end of wall painted with heavy bitumen paint.
B. Facing brick pier in stretcher bond, in storey heights, tied back as A.
C. Precast concrete slab (storey height or part storey height), tied back to brickwork, and forming external rebate to window panel joint.
D. Precast facing slab sealing ends of in-situ *concrete wall as used at Mountblow House, Clydebank (see also Fig. 8).*
E. and F. Alternative methods of dealing with a brick pier, used to provide longitudinal stiffness.

the Housing Division of the LCC Architects Department. In the first (left) the cladding is facing brick (brick-cavity-clinker), which is carried as a protective skin right over the face of the whole building: it covers the ends of the fletton brick cross walls (detail as Fig. 21a), and also the face of the concrete edge beams (boot lintol detail). In conjunction with these beams it provides the major part of the longitudinal stiffness in the block and to this extent is a stressed skin. The second sketch (centre) shows a building which strongly expresses the returned ends of the cross walls as buttressing elements, with windows and non-loadbearing panels in between: there is a minor problem here in insulating the facing brick pier—Figs. 21e and f. The third (right) shows a building which chooses to express the cross walls end details as Fig. 21b, and the structural party floor directly, with the whole of the remainder of the elevation treated as panel infilling.

It is clear from these sketches and from the accompanying photographs that the cross wall system of construction (or perhaps one should say the principles, or idea, of cross wall construction) does not *dictate* the architectural expression, but rather offers a variety of ideas from which the architect—as with any other system—selects and develops according to his lights. If the system has a characteristic form of expression it is probably on the lines of the right-hand sketches in Fig. 22—that is with expressed cross walls and light panel walls externally. Given brick cladding, however, it is a fine point for argument—whether Fig. 19 is, or is not, a simpler and more direct expression of the system than Fig. 14, both having from a structural point of view exactly the same kind of walls, internally and externally. It is interesting to see how Powell and Moya (Fig. 9) in their classroom block have used longitudinal stabilizing walls externally as major elements in an otherwise "egg-crate" elevation. Again the curtain wall could be used just as logically with a cross wall building—given internal means of longitudinal stability—as it can be with a framed structure, which equally requires bracing.

DIFFERENTIAL SETTLEMENT OF FOUNDATIONS

Differential settlement is the difference in settlement between adjacent foundations due to consolidation or compression of the bearing stratum. It is not intended to include difference in foundation movement due to partial failure of the bearing stratum.

Settlement of foundations is mainly dependent on the sub-strata conditions. The degree of settlement is affected by the type of foundations adopted; for instance, a piled foundation will settle about half that of a raft, all other factors being equal. It is accepted that differential settlement of foundations may occur to any building. In clay, independent strip footings under cross walls will settle equally provided the bulbs of pressure under the footings do not overlap within the strata of compressibility or consolidation (see Fig. 24). In other words, in clay, differential settlement of a series of strip footings depends on their spacing. The limiting condition would appear to be when the distance between the edges of the footings is less than twice their width. On the other hand, in clay a uniformly loaded raft rectangular in plan with a length of more than three times its width, will settle on the line of the major axis into the shape of a trough. Settlement on the minor axis can be considered uniform. The stress due to differential settlement in members increases proportionately with their stiffness, all other factors being equal. The stiffness of a member is a function of the cube of its depth. The stress intensity depends on its section

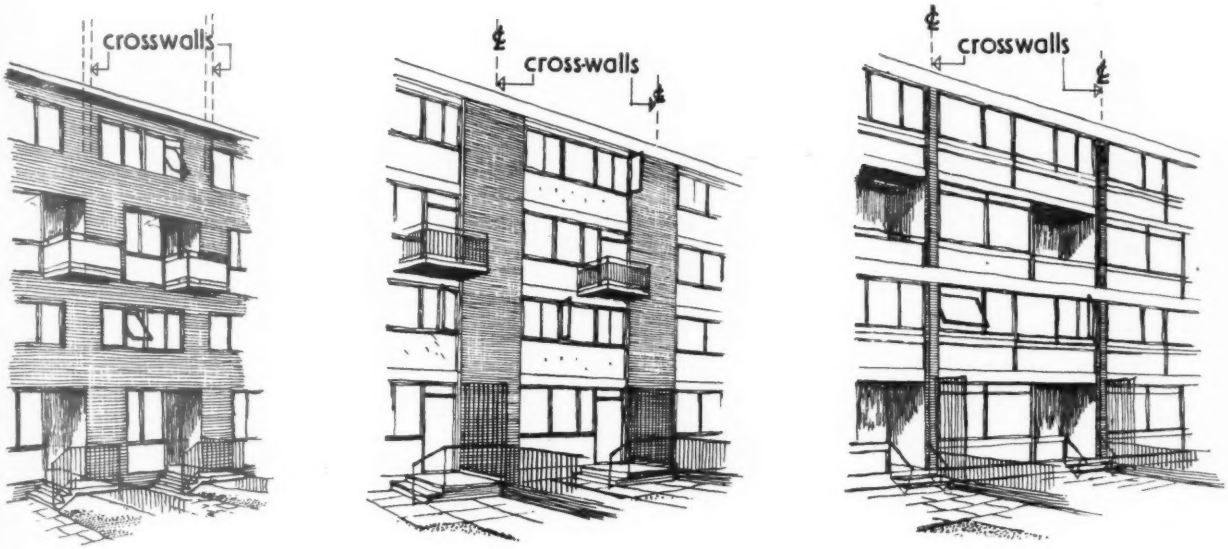


Fig. 22. Sketches showing different elevational treatments for the same floor plan. Left, facing brick carried over wall surface. Centre, brickwork alternating with non load-bearing panels. Right, brickwork confined to cross walls.

modulus, which is a function of the square of its depth. Therefore, to minimize the effect of differential settlement on any structure, the structure should have the minimum stiffness or depth of members on the line of its major axis. It must be clearly understood, however, that the stiffer the structure the less differential settlement is likely to occur, but it is not considered economically feasible to completely eliminate differential settlement in this matter.

For normal cross-wall constructions, which generally have strip footings up to 5 ft. in width, differential settlement is unlikely to be of consequence. In any case, the structure can accommodate the movement with less distress than the normal beam and column or spine wall construction, which have considerably greater stiffness on the line of their major axes.

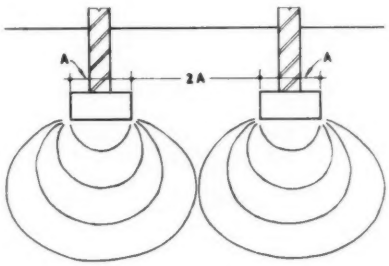
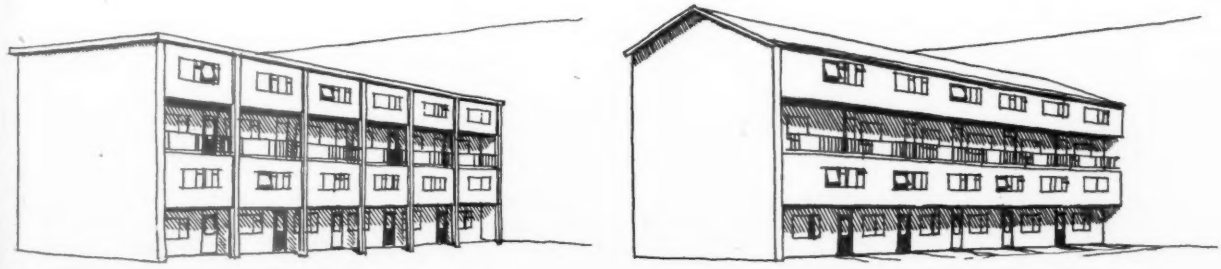


Fig. 24. Diagram illustrating cross wall foundations in clay soil. It will be seen that if the foundations were wider or were spaced more closely together, the bulbs of pressure would overlap.

CODES OF PRACTICE AND BYELAWS

It is certain that since the introduction of byelaws, architects and engineers have complained that their requirements have inhibited design and progress in building. However, the establishment of the Codes of Practice Committee for Civil Engineering, Public Works, and Building and Constructional Work in 1942, and the subsequent publication of the various codes of practice has resulted in considerable improvement. It is true that there are still a number of anomalies, but these should be removed in time as the codes of practice are revised, provided revision takes place at reasonably frequent intervals. If this revision does take place the requirements of the Model Byelaws will be kept

Fig. 23. Elevational treatments for gallery access four-storey maisonettes. Left, with supporting column. Right, with cantilevered balcony.



more or less up to date as the recommendations of the appropriate Codes of Practice are deemed to satisfy the byelaw requirements. The position in the County of London may not be quite so favourable on paper, but in practice by the use of waivers and the common sense attitude of District Surveyors, progress in design and building technique is maintained without too much hindrance. There is much to be said in favour of the complete abolition of building byelaws, but it should be borne in mind that this would bring about an alternative system of control or licensing of building which might well impose a heavier restriction on designers than the present system. Nevertheless, irrespective of the method of control, progress can only be maintained if it is backed by adequate and continuous research. This research must not be limited to the investigation of new techniques, but must also re-examine the validity of existing design requirements, particularly those dealing with relatively new materials, such as structural concrete. For instance, until 1953 the LCC byelaws did not permit reinforced concrete loadbearing walls to be less than 8 in. thick, and in any case such walls had to be reinforced as if they were columns. This was a most unsatisfactory position, because there was sufficient evidence to show that reinforcement in concrete walls was not necessary for the primary purpose of load carrying, and also the slenderness of concrete walls used in cross wall construction was unimportant, as buckling was not the primary mode of failure.

In normal cross wall construction it is doubtful whether there is any need for the shrinkage reinforcement specified in clause 303 of BSCP 111, as structural restraints which induce shrinkage stresses are insignificant. In any case, clause 305 of the same code does envisage concrete walls without reinforcement, because in such cases the slenderness ratio is limited to eighteen. In most cross wall construction using in-situ concrete walls this limiting slenderness is not exceeded. Consequently structural concrete walls without reinforcement are a real possibility for cross wall construction, and, with the present shortages of bricks, bricklayers and steel, their merit is enhanced considerably. Furthermore, with the introduction of the tower crane capable of handling large shuttering units, in-situ concrete walls allow the maximum degree of mechanization (Fig. 7).

Irrespective of the manner of constructing the walls, the main problem in cross wall construction of overall stability still remains, and until some specific requirements are laid down, designers must continue to use their own skill and experience.

APPOINTMENT

Architect to Join University Grants Committee

Professor Robert H. Matthew, Professor of Architecture at Edinburgh University, is one of six new members appointed by the Chancellor of the Exchequer to serve on the University Grants Committee.

NEW BARBICAN

BOT has Granted Certificate

New Barbican, the scheme devised by Sergei Kadleigh, Patrick Horsbrugh and William Whitfield, for the development of a 40-acre site in the City of London, is not as dead as it might have seemed.

When the City of London Corporation turned the scheme down late last year, one of their stated reasons for doing so was that the committee sponsoring it had not received an industrial development certificate from the BOT. But a certificate has now been given to the committee, who have asked the City of London Corporation to reconsider their application for permission to proceed with the scheme.

The committee, which is confident of financial support for the scheme, will now be able to appeal to the Minister of Housing and Local Government if the City Corporation persist in their refusal of the application. They had no right of appeal until the BOT certificate was granted.

YORK

Historic Buildings: A Course

Felix Walter, the JOURNAL'S Guest Editor (Conversions) for 1954, will be among the lecturers at a course on "Modernization of Obsolescent Dwellings," which will be held at St. Mary's Hotel, York, from April 14 to 20.

The other lecturers are H. F. Clark, F.I.L.D.; B. Hall (of Allied Ironfounders Ltd.); G. Fairweather, F.R.I.B.A.; W. A. Herald, PH.D.; T. Howarth, A.R.I.B.A.; J. Jowett (of TDA), and F. W. Ledgar, M.A., A.M.T.P.I.

The course is intended primarily for practising architects, surveyors, clerks of works, builders and property managers. It will provide for a maximum of twenty resident members, but a few non-residents can also be accepted.

The fee will be ten guineas, comprising four guineas for tuition and six guineas for accommodation. In addition there may be a small charge to cover the cost of coach visits to places near York.

The course has the full and active support of the Ministry of Housing and Local Government, the Society for the Protection of Ancient Buildings, the Ancient Monuments Society, the National Trust, the Royal Institute of British Architects, and the Royal Institute of Chartered Surveyors.

The course, organized by the York Institute of Architectural Study, St. Anthony's Hall, York, is one of a series of one-week specialized courses devoted to protection and repair work in one of the main building materials, or for a particular type of building or specific building problems.

The next course in the series will be "The Care of Churches" from September 14 to 21. Prospectuses are now available.

ROADS

Campaign Council's Views

At a Press conference given by the Roads Campaign Council at the Waldorf Hotel last week, Wilfred Andrews, the chairman of the Royal Automobile Club, explained that the principal national organizations representing the interests concerned with the manufacture, maintenance and use of road transport had formed a Roads Campaign Council. Their purpose was, by a publicity campaign, to bring pressure on the Government to adopt a radical programme of road development for the country, which, with 6,000,000 vehicles on the road, was the most densely "trafficked" in the world. The Council believed that the Government's proposed expenditure of £147,000,000 was inadequate: road strangulation was pushing up the cost of our exports and therefore our cost of living, and was also keeping up the high accident rate.

The Council insisted, said Mr. Andrews, that the most effective way of solving the road problem was to set up a National Highways Authority to control finance and to act as a body through which road loans could be raised. As road development allocations from revenue were haphazard, only through such an authority could a *continuous* financial policy, independent of political vagaries, be assured. The authority would organize, with local authorities and others concerned, the planning and financing of new road construction and major improvements. There was the possibility that loans might effect a reduction in road taxation, for if a £750,000,000 loan were raised, as and when needed over ten years, and repaid over 30 years, the maximum annual repayment would be £45,000,000, less than one-eighth of the taxation levied now on the roads. Moreover, work could

be started immediately; the civil engineering industry had said it was quite capable of doing the job.

CORRECTION

"That" Not "But"

We must apologize to Sir Giles Gilbert Scott for misquoting—last week—his report as assessor for the Liverpool Church House competition. As readers will see from this report, which is published nearly in full on page 382, he wrote of a design (the second prizewinner's): "in the contemporary style that has a number of attractive features." Owing to a mis-heard reading of the report on the telephone, we quoted Sir Giles as saying: "it is in the contemporary style, *but* has a number of attractive features."

The three winning designs are illustrated on pages 377 to 382 of this issue.

RIBA

Some Recent Appointments

The following appointments were approved at a recent RIBA council meeting:—

R. J. Hurst will take Graham Crump's place as one of the twenty-seven RIBA representatives on the Architects' Registration Council for 1955-56.

Sir Hugh Casson will serve on the jury of the Berks, Bucks and Oxon Architectural Association, to consider bronze medal awards. T. W. Mavwick will have a similar duty with the jury of the Northern Architectural Association.

Romilly B. Craze will take Hubert Lidbetter's place as RIBA representative on the board of governors of the LCC Technical College for the Furnishing Trades.

Frank Chippindale will succeed the late Norval R. Paxton as RIBA representative on the county advisory committee for building of the Yorkshire Educational Association for the Building Industry.

Professor W. B. Edwards will be RIBA representative at the annual meeting of the General Council of Registered Plumbers Association.

F. Charles Saxon has been re-elected chairman of the Allied Societies Conference for the Session 1955-56. He thus becomes—automatically—a vice-president of the RIBA for the next session.

John Kemp will take D. L. Medd's place on the BSI Committee (Sinks and Lavatory Basins).

J. T. Redpath will take D. L. Medd's place on the BSI Committee (Doors).

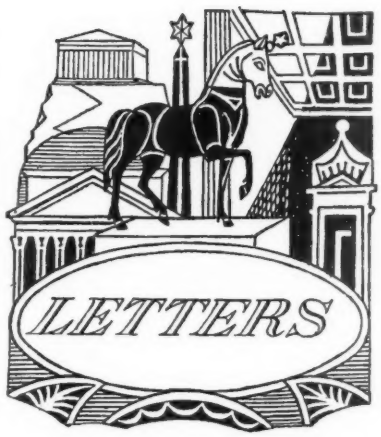
J. R. Harris will take C. Adler's place on the BSI Committees (Asbestos for Cement Sheeting; Asbestos Cement Pressure Pipes; Light and Heavy Flue Pipes and Asbestos Rainwater and Soil Pipes).

HALSINGBORG

Exhibit by JOURNAL'S *"Men of the Year"*

Britain will be represented at the Halsingborg Exhibition (June 10-August 28) by the work of an architect and a developer who were elected by ASTRAGAL (in our New Year issue: January 20) as "Men of the Year."

One of the three types of flat designed by Eric Lyons and built at Ham Common, Surrey, by his one-time architect-partner, G. Paulson Townsend, will be shown at the Exhibition. It will be furnished by Jo Pattrick, the wife of Michael Pattrick (the AA school's principal), who selected the "show-flat" on behalf of the COID. The exteriors of blocks containing this flat and the two other types of flat were illustrated in the frontispiece of our New Year issue.



R. E. Rowlatt, A.R.I.B.A.

"Anonymouse"

T. Leigh-Pemberton

Paul Reilly

"Desdichado"

"Box Number"

"L.G.A."

G. J. Cuzens, A.R.I.B.A.

Antoinette Scott

Any more for Bedlam ?

SIR,—Mr. Pike and "Provincial Builder" (AJ: March 3) are right in suggesting that building costs can be reduced by the architect spending more time on preparatory work. This is straightforward, if not easy, in the case of a private architect with a single client. It is worse if the client is a board or committee. It is worse still if the client is one of the public services, and much worse if the architect is not independent, but a salaried officer in a public service; for then he has to cope with administration, verily the god Admin.

Here, the architect, and his superiors in the technical hierarchy, have to deal with a "client" who is several independent crowds of people; the clerical section of his own department, preoccupied with the neat arrangement of committee dates; other departments of the same public service, wanting buildings complete to fit in with their own programmes; committees and councils, largely composed of laymen; and, looming over all, the ministries, financially powerful.

Admin, conflicting in its sectional demands, with independent programmes arrived at without consultation of the architect, causes hopeless chaos. But Admin is a most high god; so long as its organization is tidy and exact, it matters not that the jobs start and jerk from one panic to another; that the office gets an evil reputation among contractors; that costs stay up. Regrettable, of course, but Admin cannot be wrong.

The decrees of Admin, then, must somehow be made to work, or at any rate to give the appearance of working. With an Admin dateline always too close, the architect in charge scrambles through working drawings—and possibly rough details—amended by preliminary drawings from his specialists and consultants. This ill-digested information is thrust, by instalments, at the quantity surveyor, who knows that only rapid taking-off will divert further alterations from his bill to the first variation order. The architect does want alterations from his own first thoughts and Admin, of course, is going through the same thought process, so the quantity surveyor is kept busy either altering his dims. or listing items for subsequent adjustment, if not forgotten. The consultants join with Admin, too, and the final bill is already out of date when it goes out. The contractors, kept short of time for tendering by Admin, learn too much from the number of provisional sums, and doubtless inflate their prices to cover further changes of policy.

The "successful" contractor finally gets a contract accompanied by drawings which are now museum pieces and a bill which is used chiefly to see what the quantity surveyor (not the architect) specified and to price the variation orders; the first (and sometimes the largest) of which may even accompany the contract documents, together with a much amended set of drawings, representing the latest edition only of the building programme.

The job goes along as best it may, the architect in charge struggling with Admin, the specialists, the consultants and (to be honest) his own judgment, to settle all those things which ought to have been fixed before the quantity surveyor began, and which must now be done with the contractor constantly on his heels—if he still retains any enthusiasm for the job. The unfortunate assistants in the office find themselves switched from one job to another as crisis follows crisis; but of this Admin knows little except the high staff turnover.

Admin, though, is merciful in this, that it looks after the accounts, and the architect is spared the acrimonious final settlement; but the contractor remembers his lesson when the next job comes along and the rates go up accordingly.

One day, perhaps, the architect really will be in charge, right from the beginning, and will even be able to tell Admin to wait until it has made its mind up; until the specialists and consultants have settled their schemes; until the architect has written his specification. Then the quantity surveyor and the contractor will have confidence in the drawings and prices will drop; so will ultimate costs.

Meantime—any more for Bedlam—or the Palladium?

RALPH E. ROWLATT.

Warwickshire.

Raising Status : It's up to County Architects

SIR,—So long as assistant architects in salaried employment are used only and deliberately as architectural assistants the status of the architectural profession will not improve.

The responsibility lies with the county architects: they should take the lead, on behalf of the profession, by using—to the maximum—each architect member of their staff. And they should have the courage and dignity to acknowledge the authorship of the work done.

"ANONYMOUSE."

Pembs.

Strip Exhibition

SIR,—I was interested to read ASTRAGAL'S comments about exhibition technique in your issue for March 3.

There are, of course, a large number of film strips on architectural subjects available for use in the schools. It seems, however, that those responsible are slow to appreciate the advantages of film strip in the presentation of designs and the study of projects.

As a film strip producer, I have found that there is not a general appreciation of the advantages of the projection of specialist material by means of still photography.

I agree with ASTRAGAL that it would be more pleasant and less exhausting to see intelligent and comprehensive use of visual aids at exhibitions and conferences, and in architectural schools.

T. LEIGH-PEMBERTON.

London.

Astragal Half Right

SIR,—ASTRAGAL was only half right in his reference to my article in the *News Chronicle* on the RIBA exhibition of German Architecture. (AJ: March 3.)

Admittedly it appeared under the heading "The Germans Did it Much Better," but that was the editor's, not my, choice of title.

PAUL REILLY.

London.

Too Old at 45 ?

SIR,—May I ventilate a state of affairs which seems to be irrational and unjust to those concerned, namely, the way in which architects of 45 and upwards find it increasingly difficult to obtain posts related to their experience and capacities.

There are always, in any occupation, plenty whose qualities are unsuitable for responsible executive posts, who are more or less satisfied with reasonable salaries without responsibility, and are often the mainstays of the offices in which they work. I am not referring to these. But there are a number of men who, when the war started in 1939, were aged between 35 and 45 and from whom, without the war, chief and deputy architects and their equivalents would have been recruited during the following 10-15 years. When civil building practically stopped, most of these, being above call-up age, were dispersed into the war-time economy, where they carried out work which, though often not strictly architectural, nevertheless required architectural experience for its execution and often afforded administrative experience valuable in the posts from which they have been excluded since the war. Most of them had no practices to which to return in 1945, neither had they the guaranteed return to pre-war posts enjoyed by most of those in the Forces.

Since the war, most senior posts have been filled by men aged 35-40, many of whom had lost one to six years architectural experience in the Forces. Obviously that is not their fault; it is none the less a fact. The real point is, of course, that age has little relevance to professional capacity to carry out a given task. But if this applies down the age-scale, in all fairness let it apply upward as well. In actual fact, there are many of these younger men who might be candid enough (in private) to admit that they have been, to a great extent, carried on the backs of the men to whom I refer. No question arises of the latter's capacity; they just never get on the short-lists.

I believe a chief reason for this cold-shouldering by local authorities and like bodies is a convention that a reasonable length of service cannot be expected from them. I think this is not very intelligent. A man up to 55 years old has a reasonable expectation of at least 10 years' active work before retirement, while he is unlikely at this stage to contemplate another move. A younger man is far more likely to regard his current post as a step on the way up and, indeed, it is common knowledge that the turn-over, except in the highest-paid posts, is very rapid. The whole thing is most illogical; everyone passes the age of 50, unless he dies.

"DESDICHADO."

"Anonymity"

SIR,—May I protest at the present method of advertising for an assistant in the "Appointments Vacant" section of the ARCHITECTS' JOURNAL.

Frankly, I am amazed that any of the advertisers ever receive a reply, with the possible exception of those that dangle such tempting bait as "cricket experience essential."

First we have those anonymous architects who, in their hundreds, refuse to disclose their names and lurk in a somewhat sinister fashion behind a Box Number. Is it because their work is so poor that they thus hide themselves, or are they the giants of the profession covering themselves with false modesty?

Surely we are entitled to know to whom we are applying, or may I suggest that applicants also have Box Numbers; after all I have heard of people applying for their own posts!

At least let us know where the advertiser's office is—some of us don't want to work at Land's End, and "office in the Midlands" covers rather a large field.

Further ominous clauses are "salary according to experience" and "state present salary." Please let architects be frank and say that they will pay £x to the right man rather than wait till he applies and then add 5s. a week on to what he is now getting!

And finally, do the employers who want degrees or ARIBA's a "capable man who can run drawing office without supervision at least 10 years experience," etc., ever get him for the £600 p.a. that they offer?

I hope not.

"BOX NUMBER."

[It is our rule not to publish letters under a pseudonym unless accompanied by the author's name and address. We have made an exception to the rule in the above case because the writer puts a point of view with which we have some sympathy and because these points have not been made before in this column. We would like to remind would-be correspondents that while we are well aware that in many cases architects cannot sign their letters for publication, *we normally only publish letters under a pseudonym if accompanied by the author's name and address in full.*—EDS.]

The Junior Assistant

SIR,—The recent award of the National Joint Council for Local Authority (Special Classes Staff) referred to under NALGO in your issue of March 3, again places the junior architectural assistant in an anomalous position when compared with his contemporary the junior engineering assistant.

Under the scales, until the architectural pupil, or trainee, has passed the Inter RIBA he is not eligible for a higher grade than Higher General Division, the salary for which—at 21 years of age— is £300. With the engineering pupil he qualifies for Grade I APT salary £500-£580, as soon as he has completed "professional training such as that envisaged in the scheme for the Training of Municipal Engineers," and this normally occurs at the end of his three years pupilage.

In my view, at the end of three years' office training the architectural pupil, or trainee, merits parity with the engineer, and this contention is supported by most engineers with whom I have discussed the point.

It should be remembered that many external entrants to the profession, particularly those in the provinces where no architectural schools exist, find it difficult to pass the Inter RIBA until they have had four or more years of study but in the meantime, their usefulness in the office increases rapidly.

I have referred this unsatisfactory state of affairs to the RIBA, but can get no support.

I consider that the conditions as represented are not good for the status of the profession. What do your readers think?

"L.G.A."

Ask for TU at RIBA's AGM

SIR,—May I add a few words to the discussion in your columns on the subject of the RIBA and an architects' union?

In the first place, to all those who have contributed to your columns I would say: "attend the RIBA Annual General Meeting on May 3, and voice your views." The AGM is the proper forum for criticism and it would be a change, I am sure, to hear a new subject!

May I, in addition, suggest that those who clamour for a wage—or salary—negotiating body on the lines of a trade union remember that such a body must achieve a position of strength in order to function; many of us who are or have been employers would gladly support a union to regulate salaries, but until the whole profession is adequately protected by a new registration act which will defend the provincial member against "piracy" by unqualified "draughtsmen" masquerading as designers, and (dare I mention) officials bolstering their salaries by undertaking private work; I can assure the salaried members that if they will lend their weight to a move to raise the status of the whole profession to equal solicitors and doctors, the conditions of salaried assistants will quickly improve, but as things are today many practices simply cannot afford to support a union.

G. J. CUZENS.

Sussex.

Temple for Toddlers

SIR,—Could I but meet these people who discuss Hunstanton school as the Temple of Anti-Christ! (See ASTRAGAL'S notes for February 24.—ED.)

I just hear it discussed as a Temple. Period.

ANTOINETTE SCOTT.

London.

DIARY

German Architecture Today. Exhibition at the RIBA, 66, Portland Place, W.1. Monday to Friday, 10 a.m.-7 p.m. Saturday, 10 a.m.-5 p.m. Admission free.
UNTIL MARCH 24

The Soho Project. G. A. Jellicoe. (Sponsored by Students' Committee). At AA, 34, Bedford Square, W.C.1. 7.30 p.m.
MARCH 21

Comparisons in Modern Structural Steelwork. Professor W. Fisher Cassie. At RIBA, 66, Portland Place, W.1. 6 p.m.
MARCH 22

The Builder, Quantity Surveyor and Architect. Informal discussion at AA, 34, Bedford Square, W.C.1. 6.15 p.m.
MARCH 22

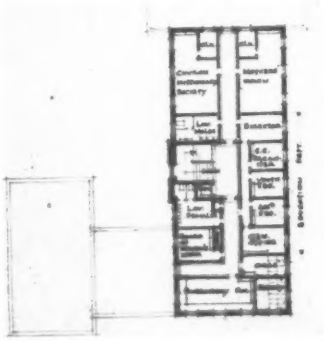
Modular Co-ordination Research: The Emerging Pattern. William Allen. At RSA, 6, John Adam Street, W.C.2. MARCH 23

Exhibition of Photographs by Werner Bischof. At the ICA, 17-18, Dover Street, W.1. Monday to Friday 10.30 a.m.—6 p.m. Saturday 10.30 a.m.—1 p.m.
FEBRUARY 23 TO MARCH 26

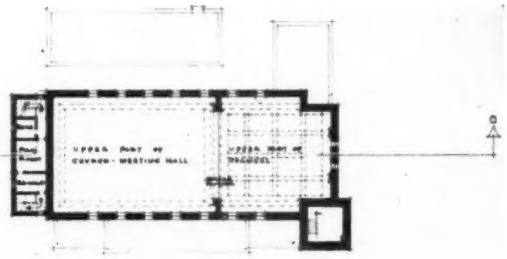
New Homes from Old Houses. Exhibition of flats furnished by the WVS for the MOHLG Harles Street exhibition. At the Geffrye Museum, Kingsland Road, E.2. Tuesday to Saturday, 10 a.m.—5 p.m. Sunday 2—5 p.m.
UNTIL END OF MAY

CHURCH HOUSE COMPETITION: THE WINNING DESIGN

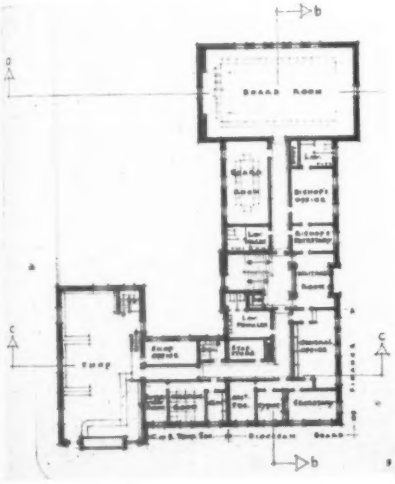
Last week we announced that the Church House competition—organized by Liverpool Diocesan Reorganization Committee—had been won by D. G. MacConville (first prize: £800); S. W. Milburn and Partners (second prize: £400), and Geoffrey P. Dawson (third prize: £200). This week we publish plans and elevations of the winning designs, together with brief comments from their authors and extracts from the report of the assessor, Sir Giles Gilbert Scott. The designs will be exhibited at the Walker Art Gallery, William Brown Street, Liverpool until March 26.



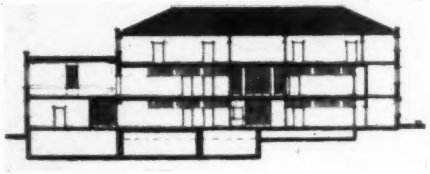
Second floor plan



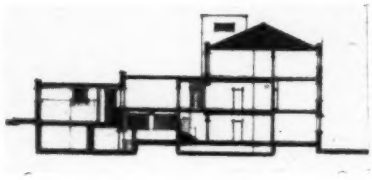
First floor plan (church)



First floor plan (offices)



Section B-B



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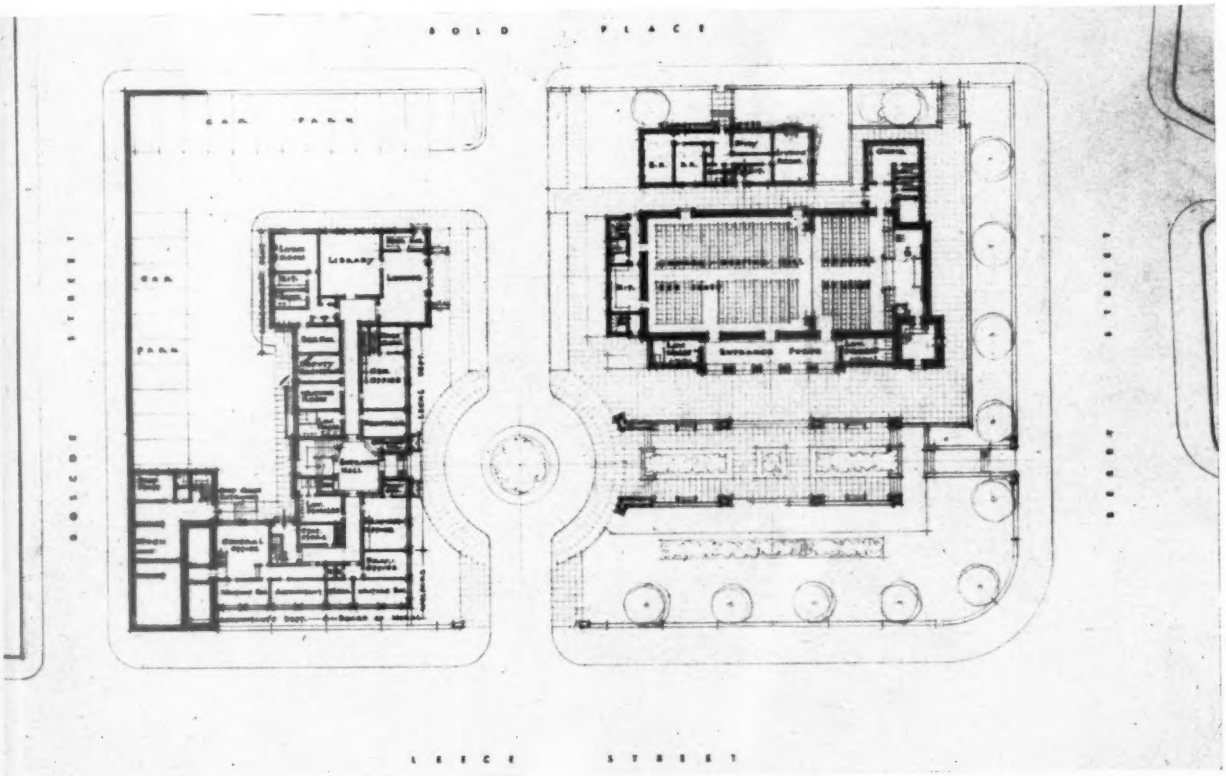
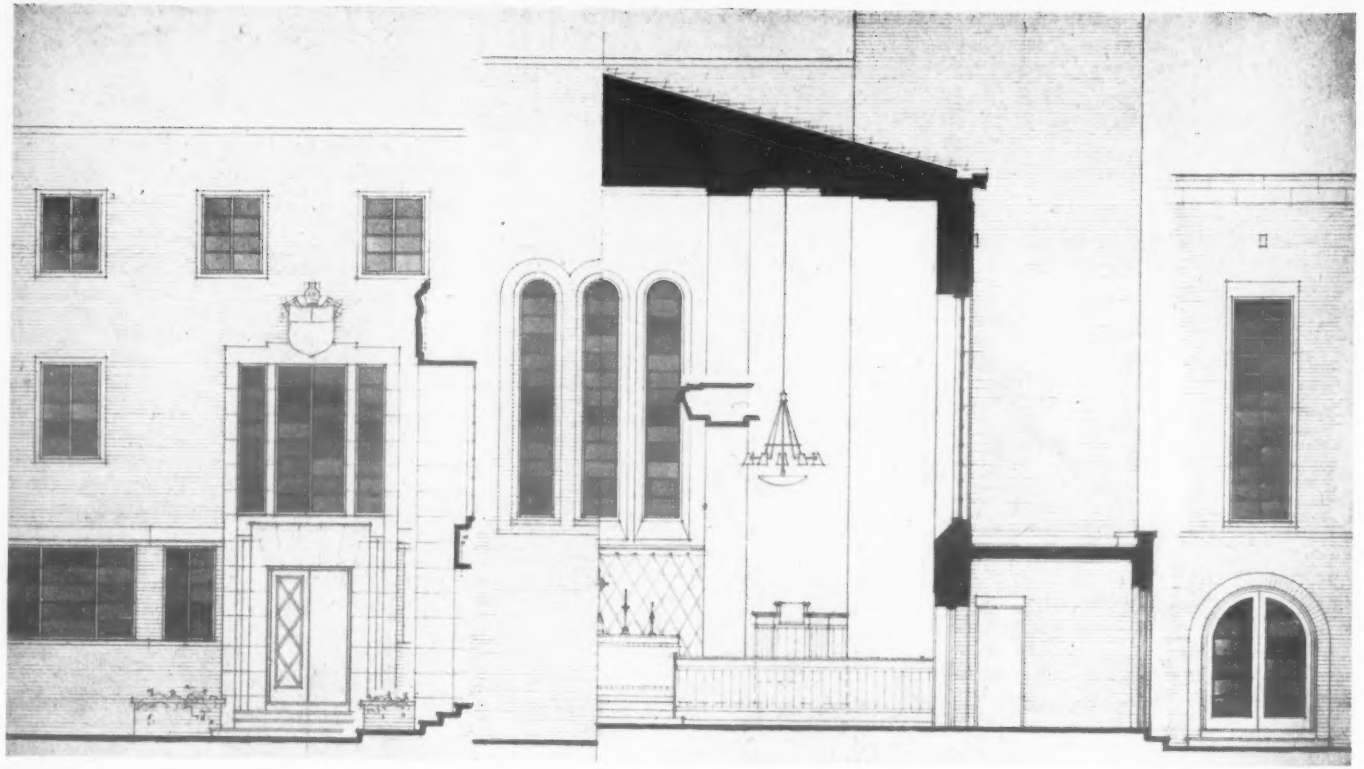


Ground floor plan

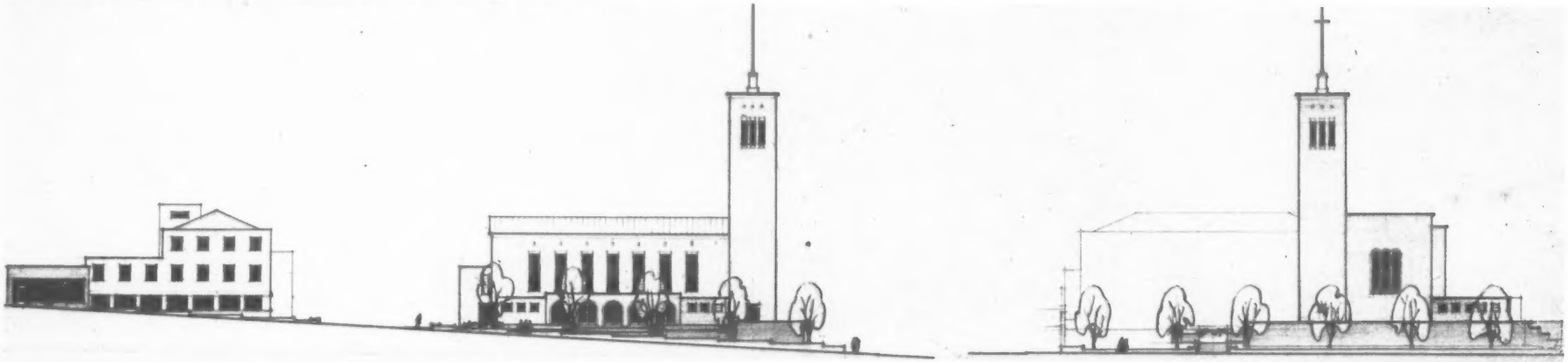
CHURCH HOUSE COMPETITION: WINNING DESIGN

A quiet dignified treatment has been adopted here, writes the author of the winning design, relying for effect on the massing and grouping of the buildings and on the materials employed externally, which will be 2¼ in. rustic bricks of a golden brown colour. The group is dominated by a tower approximately 90 ft. high (surmounted by a gilt bronze cross) and which closes the vista up Bold Street, an important shopping centre, from the entire length of which the tower will be seen. Gardens, which will be open to the public, have been planned at the north-west corner of the site, where the two main approaches converge. Advantage has been taken here of the levels of the site to form an interesting layout of terraces and garden.



Extreme left, details of Church House; left, details of Church

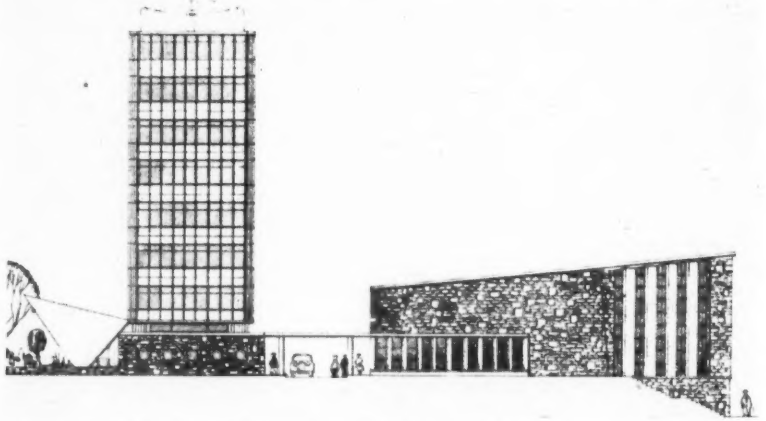
Below: left, north elevation of Church House and Church. Below, west elevation

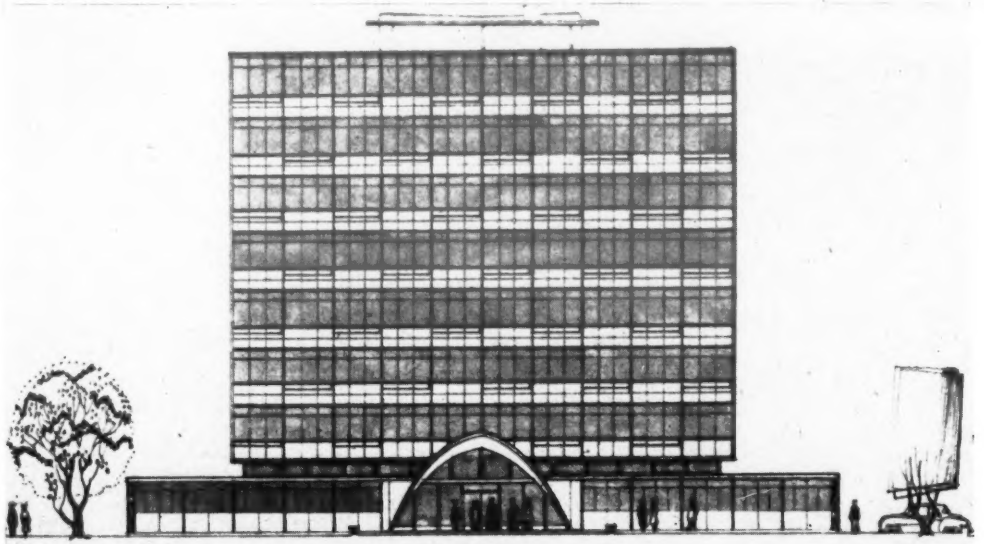


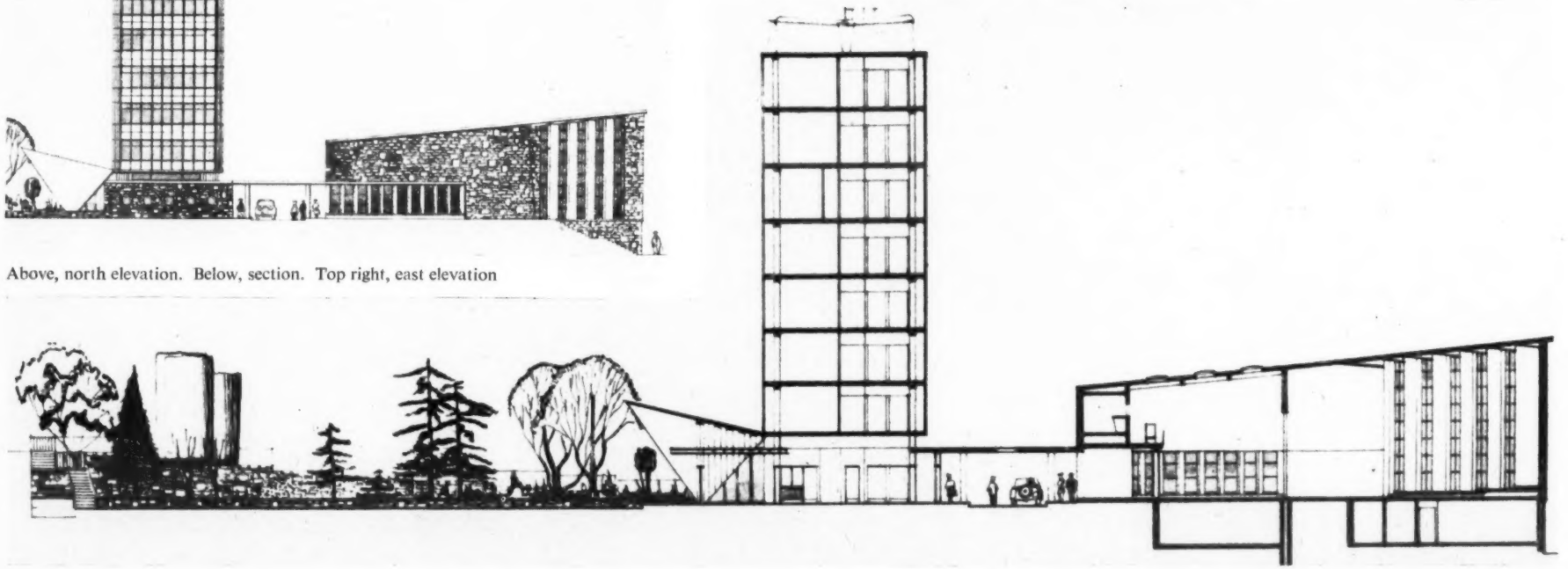
CHURCH HOUSE COMPETITION: SECOND PRIZE-

CHURCH HOUSE COMPETITION: SECOND PRIZE-WINNING DESIGN

Much thought and study has been given (write the authors in their report) to develop and plan a monumental group of ecclesiastical buildings which will be worthy of the fine site made available by the promoters. The church altar forms the central axial feature of the plan, and it will be clearly visible from the central garden approach to Church House through the glass-sided foyer, and through the entrance doors of the church hall itself. The church sanctuary with a cross to be illuminated at night closes the vista up Bold Street. The elevations indicate the bold massing of the two buildings, and how the structural stone walling of the church will form the solid base out of which springs the graceful eight-storey Church House gleaming by day and by night in silver and glass. Aspect and freedom from noise are two of the more important considerations that have guided the placing of the principal rooms. Departmental requirements fitted very simply into an eight-storey building, each floor being served by a pair of high-speed lifts and adequate staircases. It is hoped that stone from the existing ruins on the site will be made available after cleaning and re-dressing for constructing load-bearing stone walls.



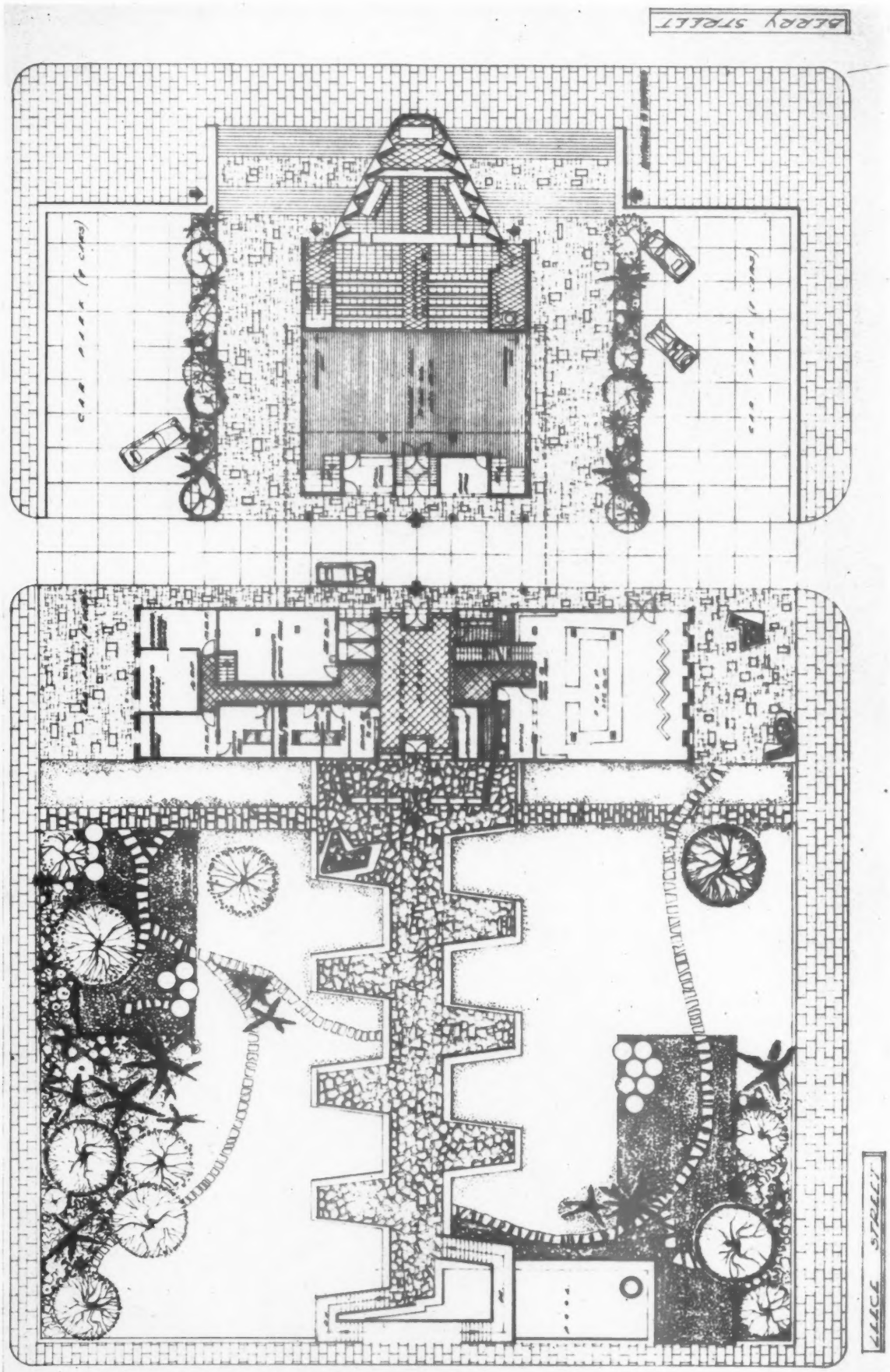




Above, north elevation. Below, section. Top right, east elevation

CHURCH HOUSE COMPETITION: SECOND PRIZE-WINNING DESIGN

Ground floor plan



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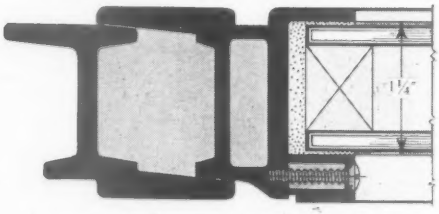

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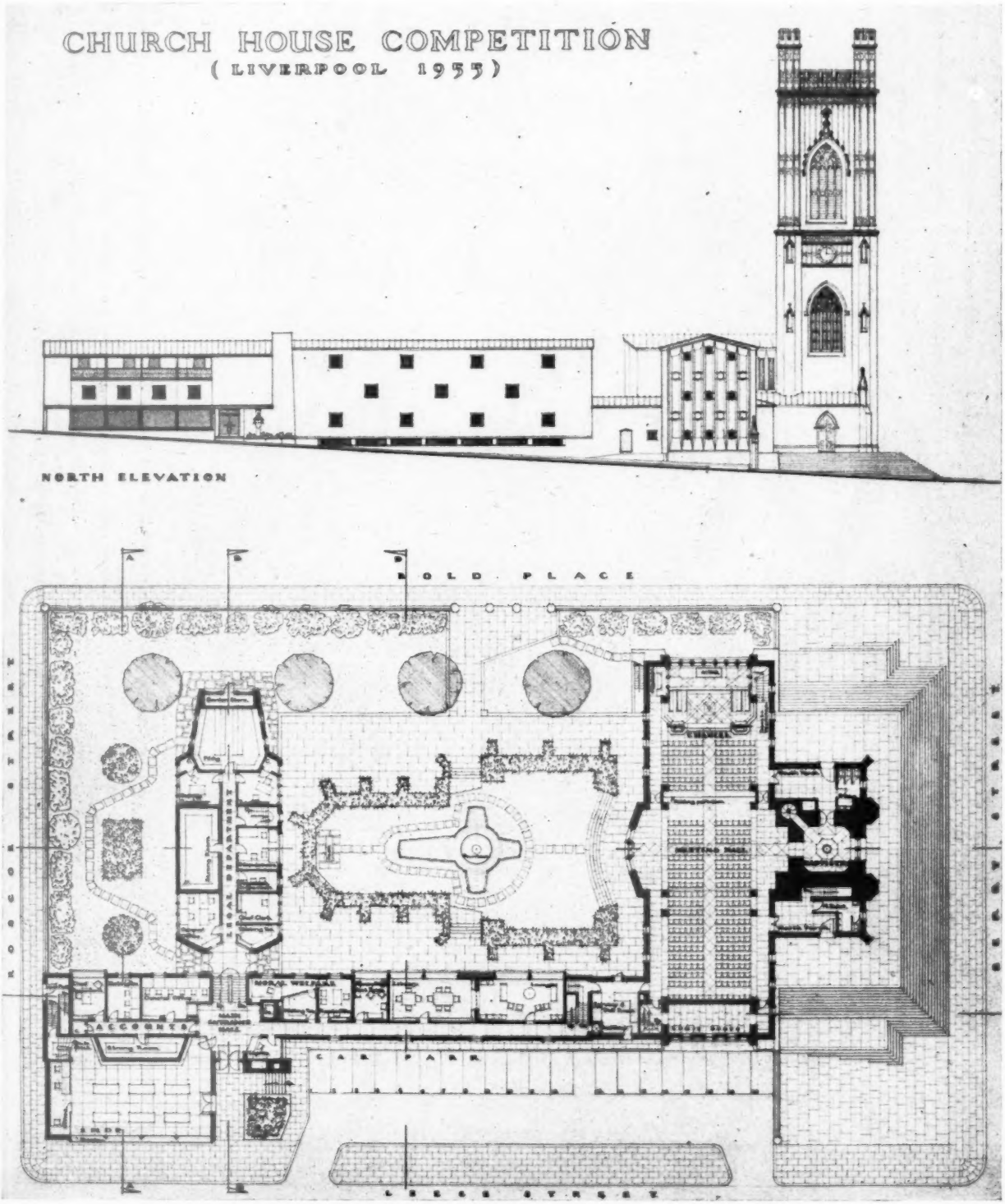
CHURCH HOUSE COMPETITION: THIRD PRIZE-WINNING DESIGN

The elements in the scheme, writes the author, G. P. Dawson, are arranged to provide a peaceful garden for the constant enjoyment of the occupants and public alike, screened from traffic noises, yet open to the sun. The public has access from the main streets into both buildings, which are linked by the kitchen service essential to each. Some axial planning is adopted for the sake of the tower and steps, retained as the key to character, in which an effort has been made to avoid certain customary clichés. The high block of the Church House is a framed structure with precast unit floors, light framed roof, and clad with light-coloured sand-faced bricks above the basement. The low block is a load-bearing wall structure with dark rustic facings, in-situ concrete floor and roof slabs meeting the needs of the complex shape. The church hall structure is concrete framing and roof slabs, the nave walls being clad with dark rustic facings, the aisles walls being ashlar masonry like the tower. The kitchen link, basement walls, chimney and walls of the shop are also ashlar masonry. All roofs are insulated and sheeted in copper, and window dressings generally are reconstructed stone.



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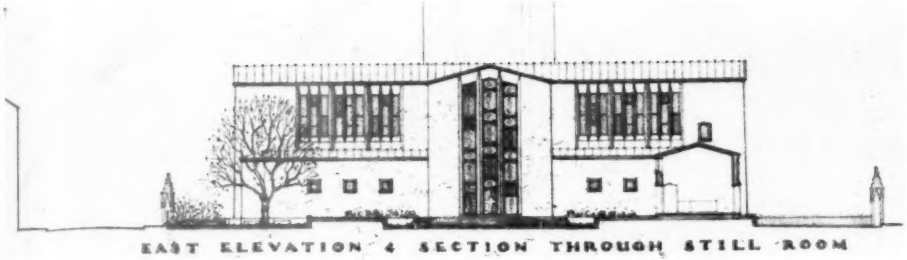
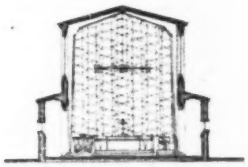
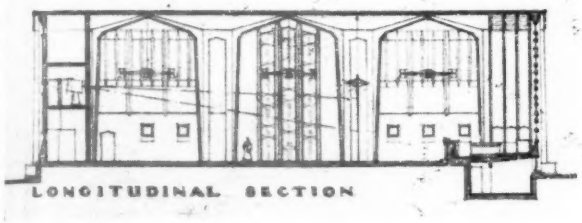


EAST ELEVATION & SECTION THROUGH STILL ROOM



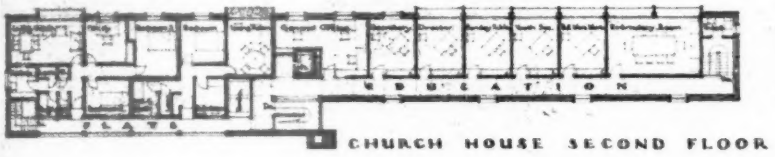
CROSS SECTION LOOKING SOUTH



LONGITUDINAL SECTION

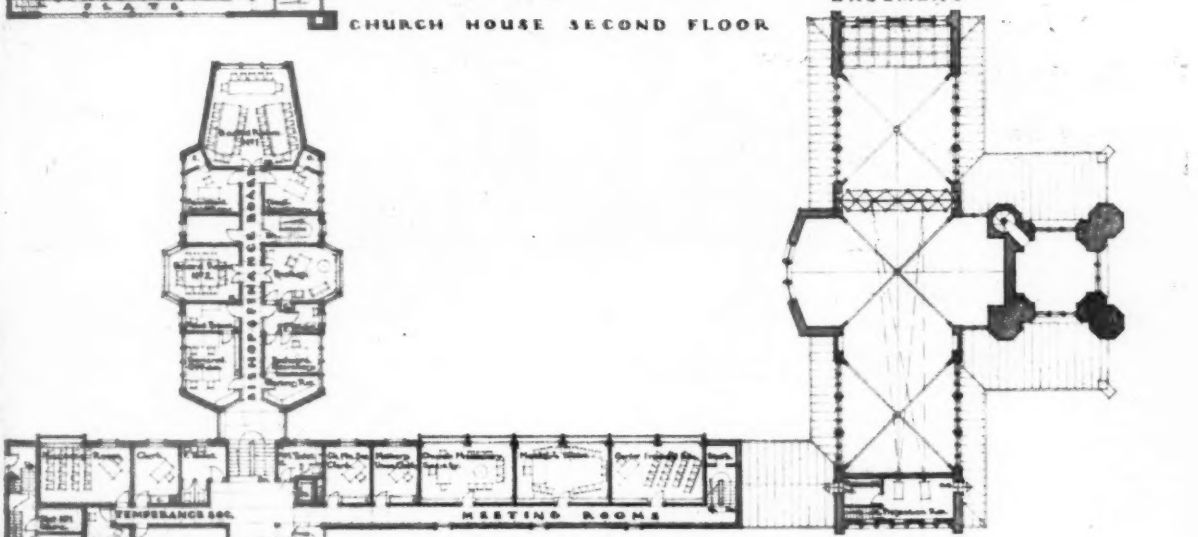
CHURCH HOUSE COMPETITION: THIRD PRIZE WINNING DESIGN (continued)

EXTRACTS FROM ASSESSOR'S REPORT: The requirement that the buildings should be recognizable as a group of ecclesiastical buildings, writes Sir Giles Gilbert Scott, proved difficult for many, especially for those working in the contemporary style, a very large plain cross on the chapel being the usual and only indication of a religious character. A number of competitors retained the old tower. Whatever may be said for retaining this tower either on sentimental grounds or for forming a vertical feature at the end of Bold Street, it cannot be said to be a tower of any special architectural merit. It has an ungainly silhouette with straight vertical lines and has ugly angle turrets. A few competitors retained the lower portion of the tower and designed a new top, an idea that had possibilities;

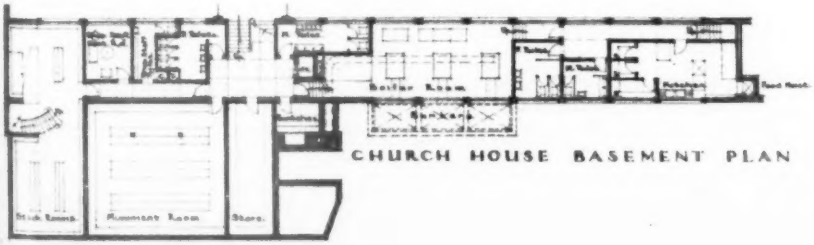


CHURCH HOUSE SECOND FLOOR

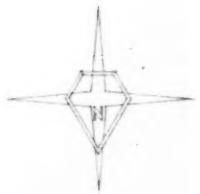
CHURCH HALL BASEMENT



CHURCH HOUSE FIRST FLOOR & CHURCH HALL VAULT PLANS



CHURCH HOUSE BASEMENT PLAN



What does cold weather cost you – in good work?

When this photograph was taken at Denby Potteries, near Derby, it was freezing outside. Yet the men you see are working *in their shirt sleeves* unconcernedly and skilfully.

Look to the roof for the explanation. It is lined with ½ in. Lloyd Insulation Board. Before insulation the highest work-temperature that could be attained when it was really cold was 46°F. Now it is a comfortable 62°F—a direct increase of 16°F, achieved without incurring the heavy expense of either new heating plant, *or greater fuel consumption by the existing plant.*

There follow other advantages vital for such work. Lighting is better and more easily reflected; dust is excluded; in summer, solar radiation is reduced, and cool working conditions are ensured.

Insulation makes sense for most factories. Ask for a copy of "The Heat Barrier" booklet, which enables you to calculate, as nearly as possible, how soon the money saved on fuel bills will catch up the initial cost of insulating your own works.

WHEN IT'S A MATTER OF KEEPING WARM AND SAVING FULL HAVE A WORD WITH

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CHURCH HOUSE COMPETITION: ASSESSOR'S REPORT (continued)

others replaced it with an entirely new tower, others abandoned the idea of having any tower. It seems desirable to have some feature on the axis of Bold Street to close the vista up this important street but it need not necessarily be a tower. Liverpool suffers from a lack of open spaces and it is desirable that any garden space should be prominent and not enclosed or hidden away behind buildings. As the site is approached from the centre of the City by way of Bold Street and Renshaw Street an open garden effect is desirable at the North West corner where these two streets meet at the site. The design I select as best meeting these various points and satisfying the detailed requirements is not exciting, which is perhaps a character too much sought after nowadays, at the expense of serenity. It is quiet and dignified relying greatly on the beauty of its materials. A 2½-in. rustic brick of a golden brown colour that is proposed promises to satisfy this requirement. A new tower closes the vista up Bold Street. The main entrance is in a private road across the site with an easily accessible car park situated in the least important corner of the site. The open garden space is well situated at the junction of Bold Street and Renshaw Street. The shop is also satisfactorily situated.

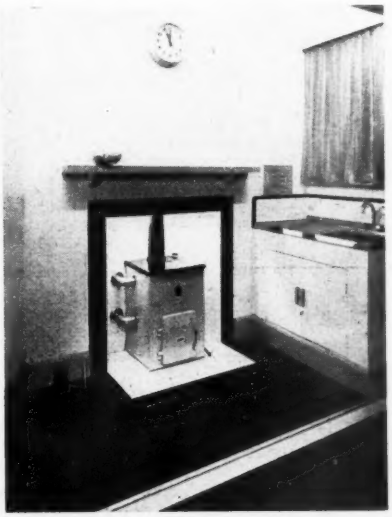
Many competitors found difficulty in planning one kitchen to serve both the Church House and assembly hall and many adopted two kitchens as this competitor has done, but there does not seem any very serious objection to this. The detailed planning of the various departments is good. I confess in making my decision I have been much torn between this design and the one I place second. This is a design in the contemporary style that has a number of attractive features. The planning is in its main lines of extreme simplicity. The Church House is a high plain glass block joined to the hall and chapel by a porte cochère; the chapel with its end like the prow of a ship facing down to Bold Street. As in the winning design the entrance is well placed on a private road across the site. This design only fails in its all-glass Church House "gleaming by day and by night in silver and glass," as its report says, a character that in the murky atmosphere of Liverpool would soon lose its pristine freshness and become drab unless kept continually washed; but it fails principally in not creating the right atmosphere for its somewhat solemn ecclesiastical purpose. It also needs more solidity so as to blend more with the character of the chapel and thus pull the two buildings together. The chapel is good though the shape of the assembly hall is not very good for cinema purposes. The design I place third retains the old tower supported at its base by the dual-purpose Church; the whole providing an imposing frontage to Berry Street. The garden is not well placed, being out of sight of the public using the two main roads and the effect from these roads would be of a built-up site. The divisions between the chapel and the assembly hall consisting of a folding screen only half the height of the opening is not very satisfactory especially as smoking will, no doubt, be sometimes allowed in the assembly hall. In conclusion I should like to express my appreciation of the vast amount of work that has been put into this competition by the 112 competitors.

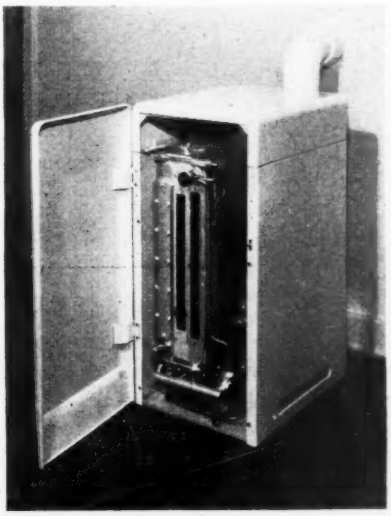
THE INDUSTRY

This week Brian Grant reports on equipment to be seen at the Ideal Home Exhibition, Olympia.

In devoting this week's review to the Ideal Home Exhibition, we are obliged to limit comment to new equipment which is being shown for the first time. It should, however, be mentioned that there are also to be seen quite a number of relatively new items which have been noted here during the last few months, including such things as Ferranti's heat pump. The Exhibition is, in fact, as always, a very convenient collection of cooking, heating and lighting equipment and sanitary fittings, and it is here—grouped—(Building Exhibition please note) that the architect will find nearly all the exhibits that concern him.

Several new boilers are shown, one of the more interesting being the Potterton Diplomat gas-fired model made by De La Rue and having an output of 46,000 B.Th.U. with a gas consumption of 120 cu. ft. per hour. The casing is very neat but at the same time adequate provision has been made for flue cleaning and de-scaling, and there is a safety control which cuts off the main gas supply if the pilot light should go out. There is also a clock control with which temperatures can be cut down at night and increased by day when the boiler is used for central heating. The model shown is a prototype and will probably be in production some time this summer, at a price of about £60, including purchase tax. The same firm has produced a new Warwick model cooker with an extra large oven, five boiling rings and an eye level grill. (*Thomas De La Rue & Co. Ltd.*, 84-86, *Regent Street, London, W.*1.)





Left, Autoheat oil burning domestic boiler. Centre, Tayco Royal solid fuel boiler. Right prototype Potterton Diplomat gas-fired boiler.

Staff Canteen, B.E.A. Engineering Base, at London Airport
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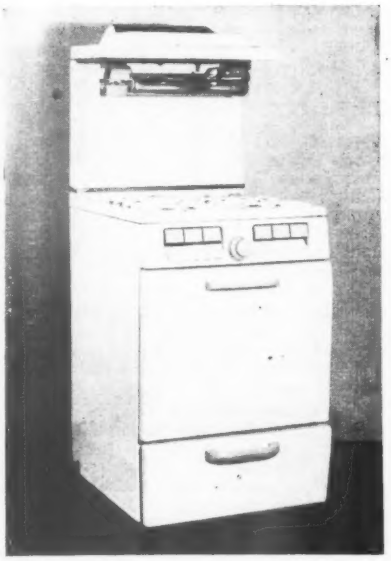

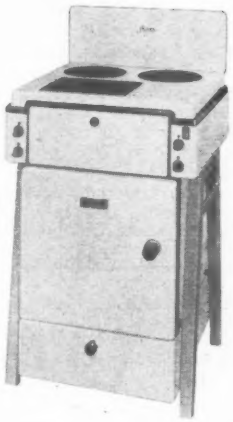

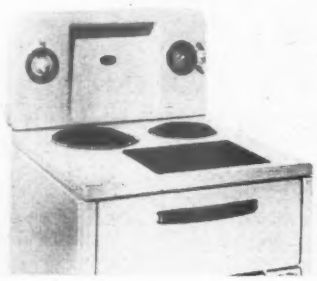

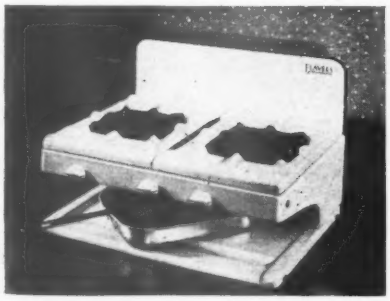

BOILERS

Watts boilers have been on the market for some years in an entirely automatic solid fuel version, and to this range have now been added six automatic oil fired types with capacities ranging from 40,000 to 200,000 B.Th.U. at prices, complete, from £123 10s. upwards. (*Watts (Factors) Ltd., Lydney, Glos.*) Automatic boilers for solid fuel are also shown by *Trianco Ltd., Imber Court, East Molesey, Surrey,* in capacities from 80,000 to 1,500,000 B.Th.U., and there is also the Clarkson Autoheat and oil-fired automatic with a thimble tube boiler and an output of 120,000 B.Th.U. (*The Clarkson Thimble Tube Boiler Co. Ltd.,* 15, *Fetter Lane, London, E.C.*4.)

Among the less exotic types of boiler there are the new Tayco Royal and the Ideal Autocrat 2A. The Tayco Royal has an output of 25,000 B.Th.U. and will deal with a 35 to 45 gal. cylinder and a towel rail, or 75 sq. ft. of radiation surface. Price is £23 10s. in cream and black vitreous enamel. (*Robert Taylor & Co. (Ironfounders) Ltd.,* 66, *Victoria Street, London, S.W.*1.) The Autocrat 2A is an enlarged version of the No. 1 model and is intended for households needing a large hot water supply and background heating by radiators. Output is 210,000 B.Th.U. and the price (cream and black vitreous again) is £34. (*Ideal Boilers & Radiators Ltd., Ideal Works, Hull.*) Both these boilers have adjustable thermostats, and normally need stoking only night and morning. Both can be supplied with Bowerbarff rustproofing and are also designed so that a minimum of ash and dust flies out into the kitchen when the grate is shaken.

COOKERS

As well as the Warwick mentioned above there are one or two new cookers. Illustrated on the left is the Parkinson Mark V, a large capacity model with automatic lighting to all burners and a large oven with a bottom hinged drop-down door. The grill is in the now fashionable place at the top of the splash back, allowing the oven to be raised to a more convenient level, which in turn makes room for a warming drawer at the bottom. The grill is large and the two halves can be independently controlled. Price is £65. (*The Parkinson Stove Co. Ltd.,* 52, *Grosvenor Gardens, London, S.W.*1.)

Electric cookers show one or two new models, including the Jackson 295, a large capacity type in the 290 series, with a drawer below the oven for kitchen utensils. Price is £30. There is also an electric clock and oven timer and a spring wound minute timer which sells as a separate unit at £11 5s. or more, according to the model to which it is fitted—a wall mounted version will be available later. (*The Jackson Electric Stove Co. Ltd.,* 143, *Sloane Street, London, S.W.*1.) A similar timer, but incorporating a light, is arranged in a splash back unit and shown as an addition to the GEC's model DC. 114 cooker and costs £12. Mention of the GEC reminds me that two of their wall fittings, mentioned in these notes on January 27, were unfortunately illustrated upside down. A letter of mild protest from Press Officer Howard concludes, " perhaps I should add that we regard these fittings as equally attractive when they are used the right way up." Faced with such a modest claim one can but express the profoundest regret. (*The General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.*2.)

REFRIGERATORS

Refrigerator design shows few major changes, though it is now becoming increasingly usual to provide the larger models with a compartment for the storage of quick frozen foods. New models include the DE. 81 with a capacity of just over 8 cu. ft. and up to 40 lb. of frozen food, by the GEC, and the L.230, a 2¼ cu. ft. gas or electric freestanding model with (again a popular current feature) storage racks in the thickness of the door. Price of the latter is 55 gns. (*Electrolux Ltd.,* 153, *Regent Street, London, W.*1.) Also made for gas or electric operation is the Astral 1¼ cu. ft. model, now made also as a freestanding model with a useful (uncooled) storage drawer in the base and selling at £44 18s. including purchase tax (*Astral Equipment Ltd.,* 96, *Buchanan Street, Glasgow, C.*1), while at the other end of the scale there is the Frigidaire 7·9 cu. ft. model selling at 114 guineas, with further models up to 9½ cu. ft. (*Frigidaire Ltd., Stag Lane, Kingsbury, London, N.W.*9).

Left, reading from top to bottom: Parkinson Mark V gas cooker. Jackson 295 electric cooker. Splash back incorporating a timer fitted to a GEC DC 114 cooker. Flavel "Leamington" portable gas hotplate. Below, left, Frigidaire 7·9 cu. ft. refrigerator. Below right, Electrolux L 230 gas refrigerator.

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17.3.55

Correction

On page 265 of our issue for February 24, Messrs. Gardiner & Theobald were shown as quantity surveyors, in conjunction with Thomas Barrett, Sons & Partners, for the Secondary School, Barnet. Messrs. Gardiner & Theobald, who have worked on other schools in the current secondary school programme for Herts County Council, did not in fact have anything to do with the Barnet school.

Announcements

PROFESSIONAL

Messrs. Fairbrother, Hall & Hedges, L/L.R.I.B.A., have been joined in partnership by Mr. Noel A. Cowburn, DIP.ARCH., A.R.I.B.A. The name of the firm remains as before.

Mr. Frederick T. Orman, T.D., F.R.I.B.A., has taken into partnership Mr. Hugh C. S. Workman, A.R.I.B.A.; the practice will continue under the name of Orman & Partners, 106, High Street, Guildford (telephone 67864 and 2403). The associate practice of Messrs. Orman & Warren will continue from 7, Gladstone Street, Nicosia, Cyprus, under the direction of Mr. F. J. Damon Warren, A.R.I.B.A., resident partner.

Mr. W. R. H. Gardner, F.R.I.B.A., has taken into partnership Mr. George L. Dale, A.R.I.B.A., and the practice will be continued under the style of Messrs. W. R. H. Gardner & Dale from 8, Cecil Square, Margate.

The Royal Sanitary Institute has appointed Mr. R. J. Audrey, M.I.SAN.E., of Messrs. Richard J. Audrey Ltd., Sanitary, Heating and Ventilating Engineers, 239, Kilburn Park Road, N.W.6, a member of its Council, as its representative on the Sub-Committee on Lead Pipes and Fittings set up by the British Standards Institution.

Messrs. Challen & Floyd, A/A.R.I.B.A., have moved to new offices at 7, Cromwell Road, S.W.7. Temporary telephone number: KENsington 0169.

TRADE

Messrs. Aluminium Union Ltd. have opened branch sales offices at Gazette Buildings, Corporation Street, Birmingham (telephone Central 1446), and at National House, 36, St. Ann Street, Manchester (telephone Blackfriars 9772/3). The Birmingham office is under the management of Mr. W. J. Cadd and the Manchester office under that of Mr. A. W. K. Lees.

The London office of Messrs. Matthews & Yates Ltd., manufacturers of Cyclone Fans and Fan Equipment, has been transferred to 135, Rye Lane, Peckham, S.E.15, telephone NEW Cross 6571 (4 lines).

Messrs. Silexine Paints Ltd., of Dishford Street, W.12, have been appointed sole distributors in this country of the Xyalmon Wood Preservative. A Xyalmon Advice Bureau has been set up in London to give expert guidance on matters of wood preservation.

Sir Richard Ernest Yeabsley, C.B.E., F.C.A., F.S.A.A., has been appointed a director of the Ruberoid Co. Ltd.

Mr. N. R. Sharpe, London and Home Counties Agent for Messrs. Callow & Keppiich Ltd. (Stonite) has moved to 24, Gunterstone Road, W.14, telephone FULham 1475.

Mr. R. G. Cole, M.S.M.A., has been appointed to the Board of Messrs. Carter & Co. Ltd.

The Northern Branch of Messrs. Charles R. Price, Building and Engineering Contractors, has moved into new offices in Barnsley Road, Doncaster. The Head office and the City office remain at Kingsbury Road, N.W.9 and Bishopsgate, E.C.2.

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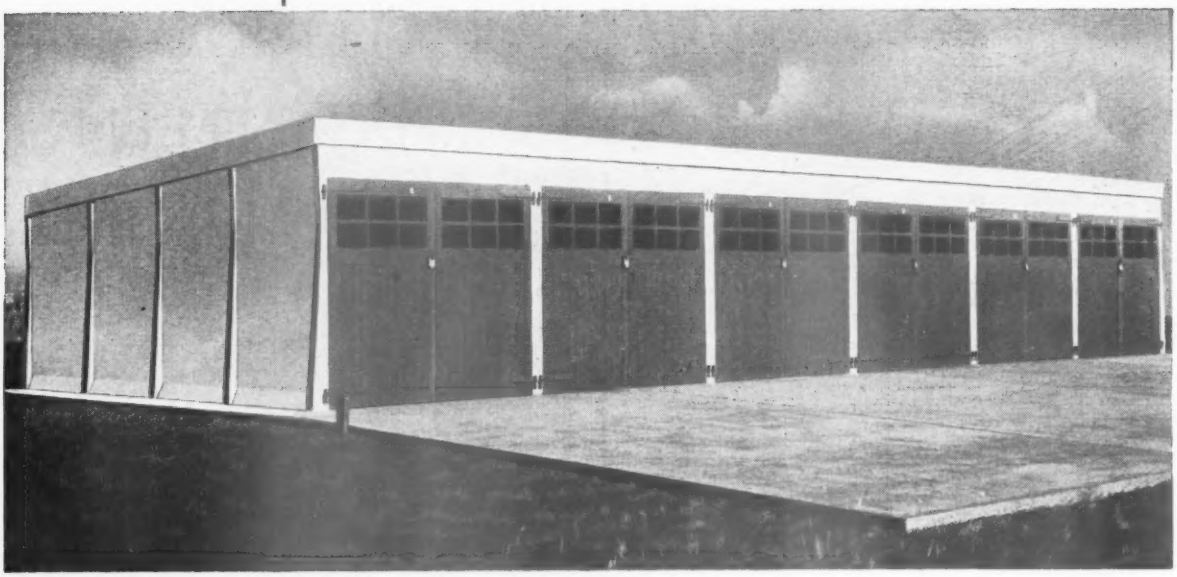

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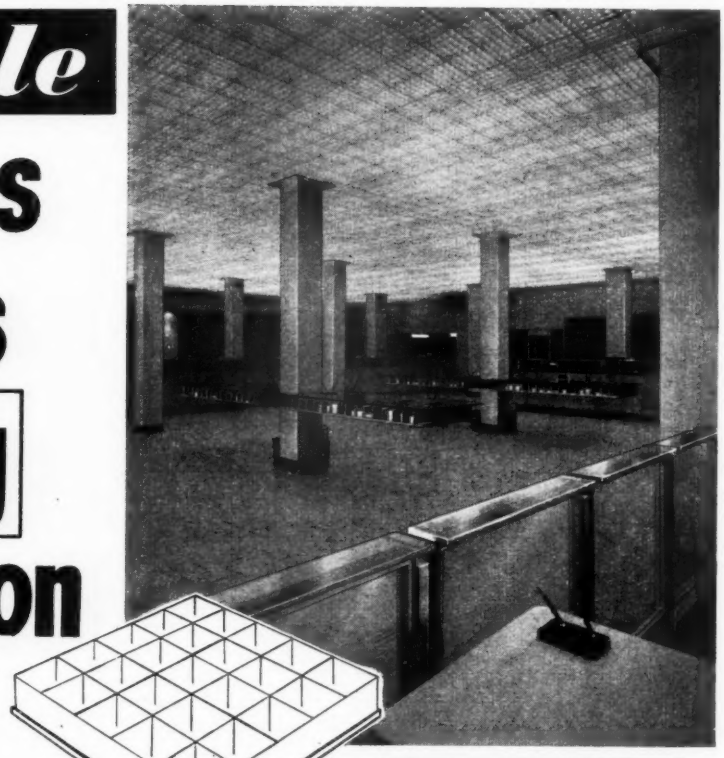

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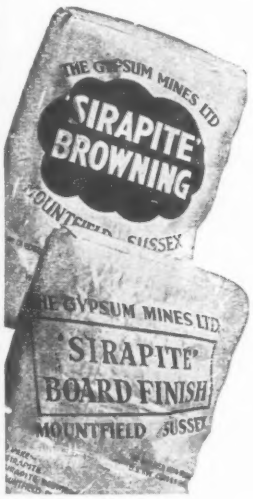

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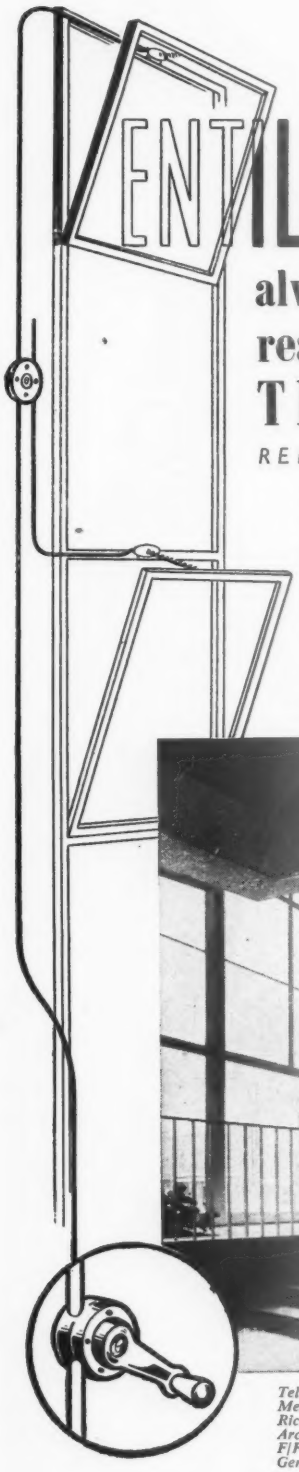

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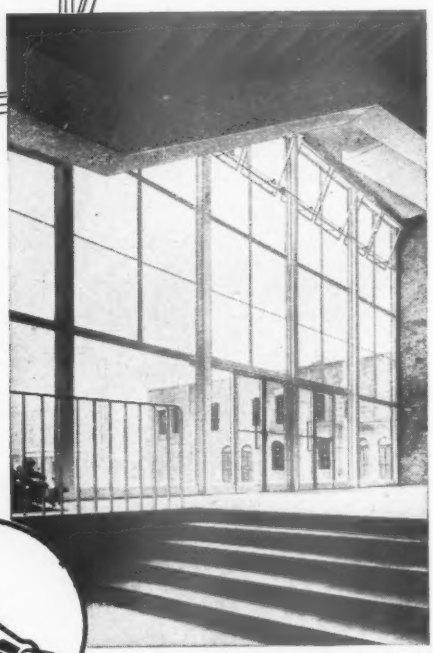

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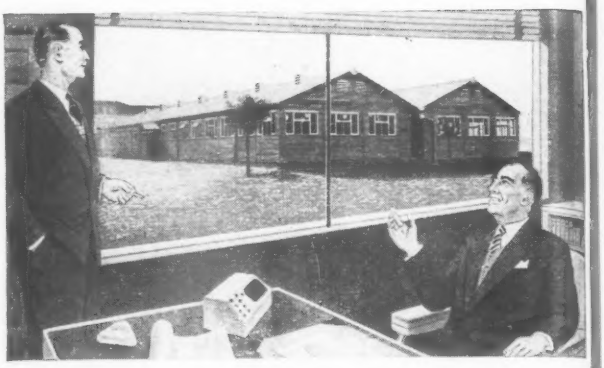

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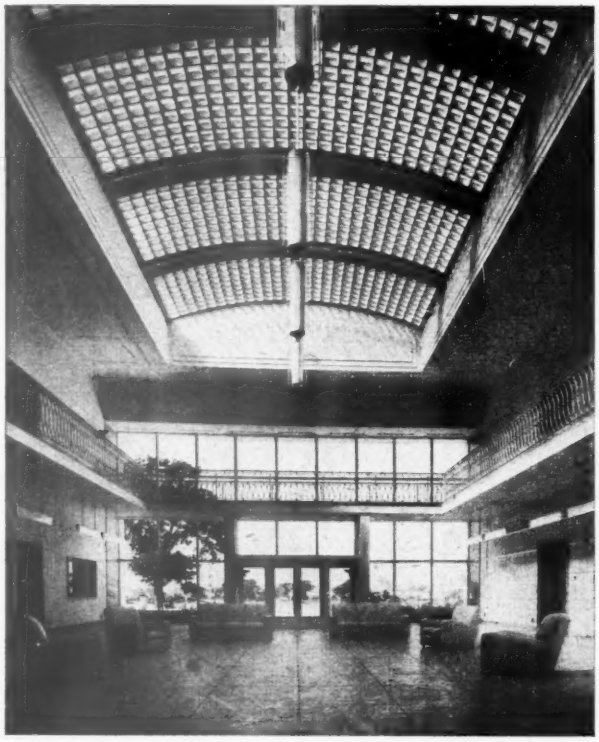

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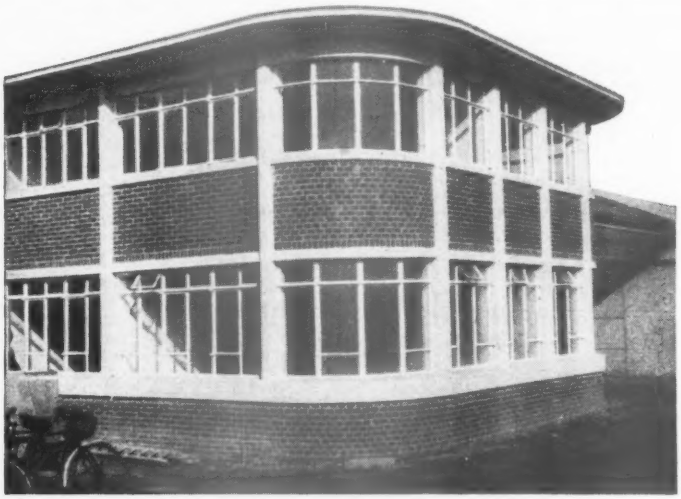

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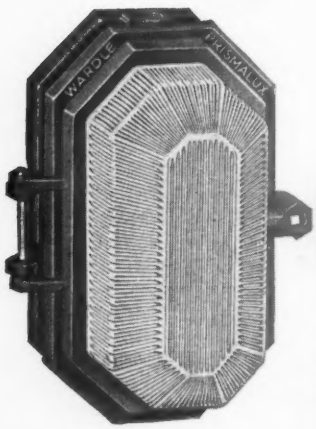

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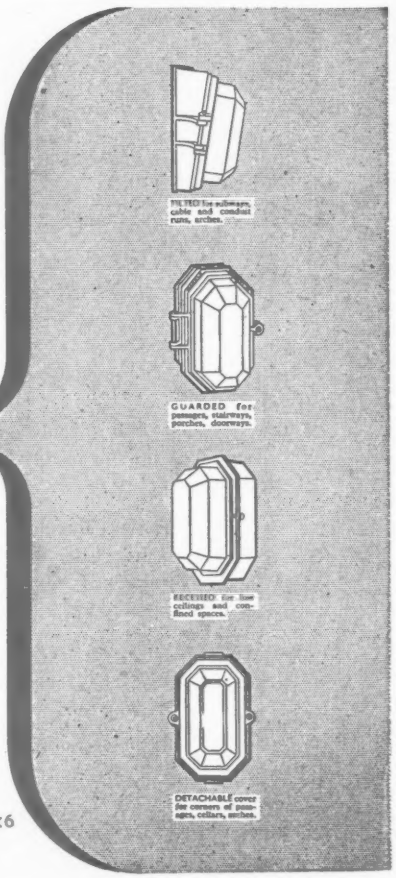
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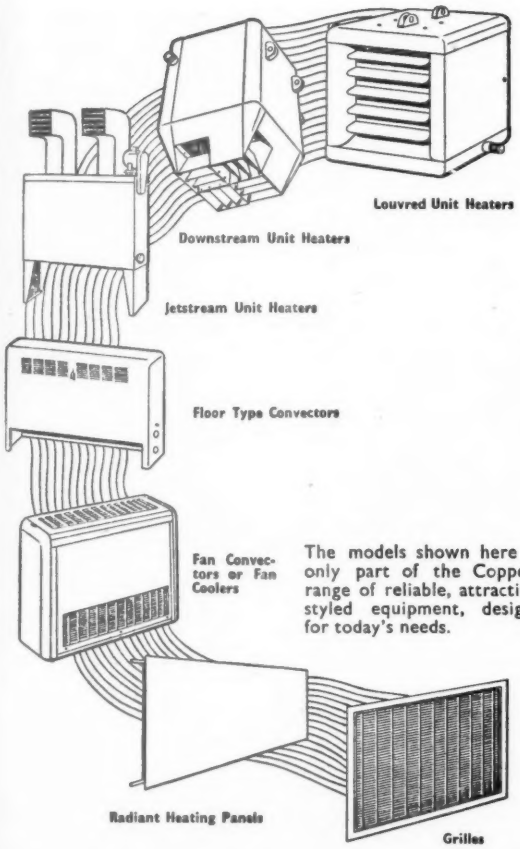

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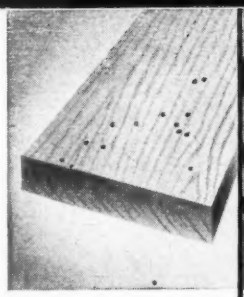

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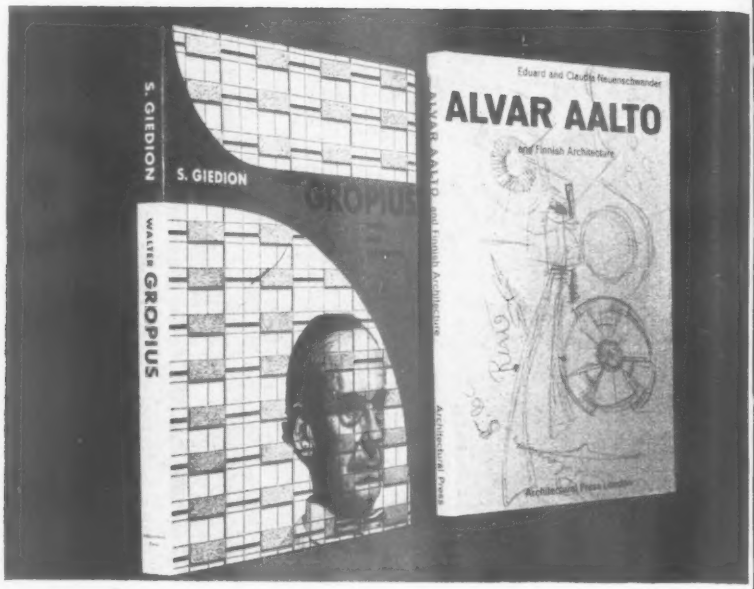

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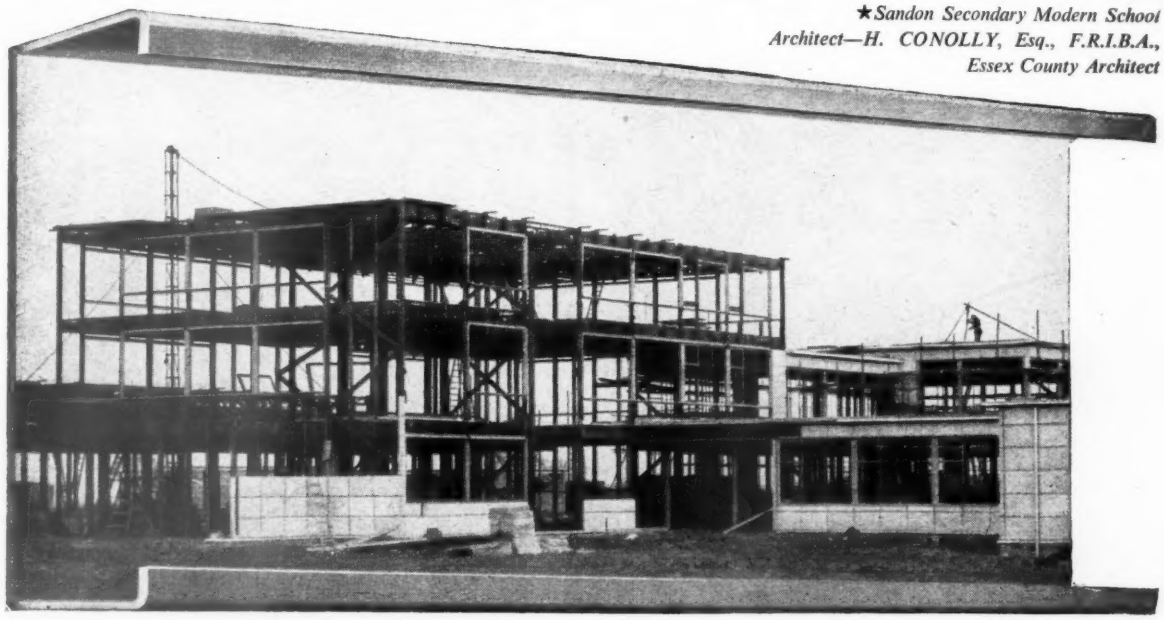

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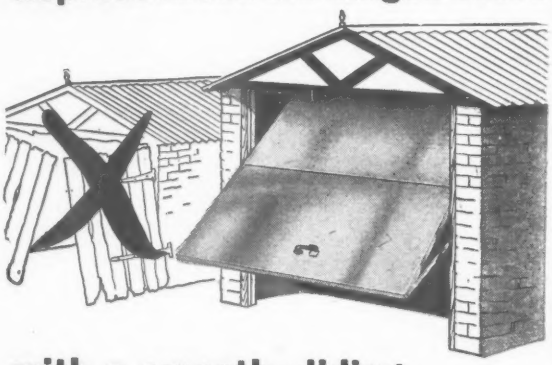

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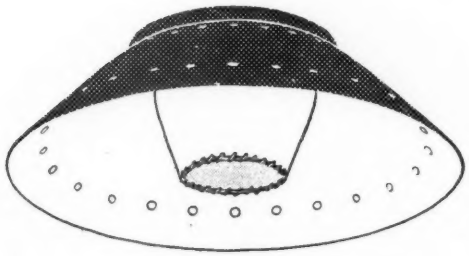

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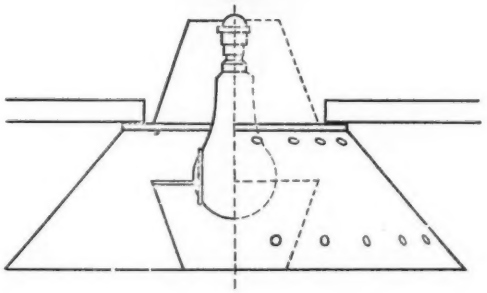

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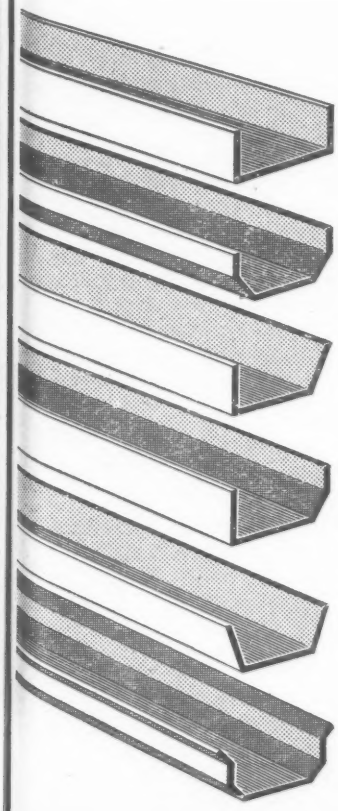

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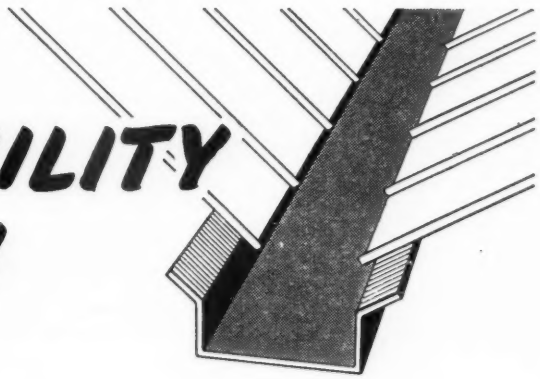

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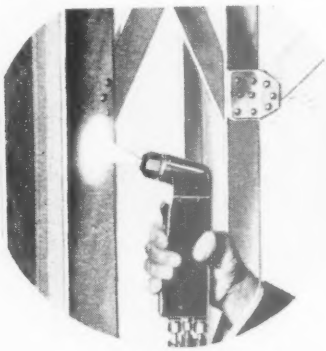

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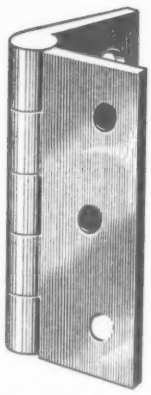

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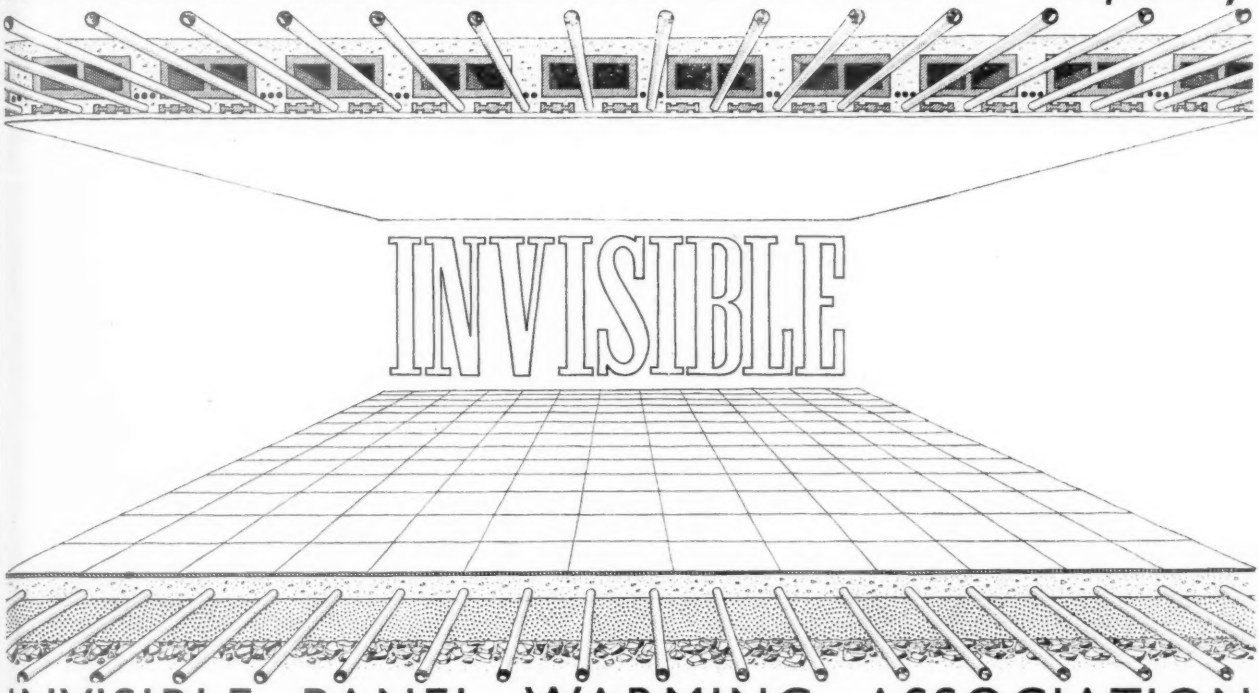

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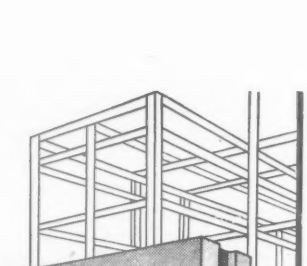

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* We shall be pleased to forward a copy of the report on the Fire Resistance Test carried out by the Department of Scientific and Industrial Research and Fire Offices' Committee, Joint Fire Research Organisation.

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LIGNACITE (North London) Ltd., Meadgate Works, Nazing, Essex. Telephone: Hoddesdon 2277.

LIGNACITE (Home Counties) Ltd., Bracknell, Berkshire. Telephone: Bracknell 666.

LIGNACITE (Fordingbridge) Ltd., Fordingbridge, Hampshire. Telephone: Fordingbridge 2177.

LIGNACITE (South Eastern) Ltd., Ninfield, Sussex. Telephone: Ninfield 345.

LIGNACITE (Brandon) Ltd., Brandon, Suffolk. Telephone: Brandon 350.

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CLASSIFIED ADVERTISEMENTS

Advertisements should be addressed to the Advt. Manager, "The Architects' Journal," 9, 11 and 13, Queen Anne's Gate, Westminster, S.W.1, and should reach there by first post on Friday morning for inclusion in the following Thursday's paper.

Replies to Box Numbers should be addressed care of "The Architects' Journal," at the address given above.

Public and Official Announcements

25s. per inch; each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

OFFICE OF THE RECEIVER FOR THE METROPOLITAN POLICE DISTRICT.

Applications are invited for unestablished appointments as LEADING ARCHITECTURAL ASSISTANTS in the Architect and Surveyor's Department. The work is concerned with the design and construction of police dwellings and buildings, and candidates will be required to work in the Westminster area.

Rates of Pay (Men).*—£665 × £20—£725 × £25—£780.

Women.—£580 × £20—£640 × £25—£665.

*The scales quoted are subject to an increase of approximately 3 per cent., while a 45½-hour week is being worked and also to the addition of a Pay Supplement of £25 or £30 per annum, according to the point reached on the scale.

Conditioned hours.—44 per week.

Annual Leave.—24 days.

Application forms from the Chief Architect, Architect and Surveyor's Department, New Scotland Yard, London, S.W.1, marking the envelope "Architectural Assistants." 6005

CITY ENGINEER, NOTTINGHAM. ARCHITECTURAL ASSISTANT.

Applications are invited for the position of Architectural Assistant, City Engineer's Department. Salary in Grade APT I, *i.e.*, £500 to £580 per annum. Applicants should be quick draughtsmen, capable of undertaking alterations and minor new works. Applications on forms to be obtained from City Engineer, Guildhall, Nottingham, returnable by 1st April, 1955. 8976

CAMBRIDGESHIRE COUNTY COUNCIL.

Applications are invited for two appointments of ARCHITECTURAL ASSISTANT, Grade A.P.T. II (£560—£640), in the department of the County Architect.

Applicants should have passed the Royal Institute of British Architects' Intermediate Examination, or its equivalent at one of the recognised Schools of Architecture, and have worked in an Architect's office for a period of two years. They should have had a good knowledge of construction and details, and be able to prepare drawings from preliminary sketches.

Applications, stating age, qualifications and experience, accompanied by one recent testimonial and the names and addresses of two referees, should be sent to the Clerk of the County Council, Shire Hall, Cambridge, not later than 23rd March, 1955.

The appointment will be subject to one month's notice on either side, and to the provisions of the Local Government Superannuation Acts of 1937 and 1953.

The selected candidates will be required to pass a medical examination.

CHARLES PHYTHIAN,
Clerk of the County Council.

Shire Hall, Cambridge.
1st March, 1955. 8931

EAST ANGLIAN REGIONAL HOSPITAL BOARD.

ASSISTANT ARCHITECT. Candidates must be Associate Members of R.I.B.A. and Registered Architects. Good general experience in design, construction and specification writing essential. Knowledge of hospital work desirable. Salary £625—£890 per annum. Additional increments within the scale based on experience and age may be granted to suitable applicants. Applications stating age, qualifications, experience and full details of present position, with names of three referees, to Secretary of Board, 117, Chesterton Road, Cambridge, by 25th March, 1955. 8975

BOROUGH OF BARKING. DEPARTMENT OF THE BOROUGH ARCHITECT. ARCHITECTURAL STAFF.

Applications are invited for the following appointments:—

Two ASSISTANT ARCHITECTS: Commencing Grade A.P.T. I (£530 × £20—£580).

These salaries are subject to the addition of London Weighting which is £20 per annum at age 21 years, increasing to £30 at age 26 years.

Application forms, together with further details of the appointments may be obtained from the Borough Architect, Town Hall, Barking, Essex, and completed applications should reach the undersigned not later than 9 a.m., Saturday, 26th March, 1955.

E. R. FARR,
Town Clerk.

Town Hall,
Barking,
Essex. 9040

WAR OFFICE.

Vacancies exist for ARCHITECTURAL ASSISTANTS in the Architectural branch of the Directorate of Fortification and Works, Chessington, Surrey.

Candidates must have at least three years' architectural training, experience in an architect's office, and be of Intermediate R.I.B.A. standard.

A varied programme of design is undertaken, including married quarters, barracks, hospitals, schools, clubs, layouts of estates and cantonments, for Home and Overseas.

Applicants must be British of British parentage.

Salary range is £432 (at 21)—£680 plus overtime. Starting pay according to age, qualifications, and experience, with annual increases subject to satisfactory service. Prospects of promotion and establishment. Canteen facilities.

State age, full details and experience to Secretary of State for War, War Office (C.5.A), R. 503, Northumberland House, W.C.2. 8968

NORTHUMBERLAND COUNTY COUNCIL. COUNTY PLANNING DEPARTMENT.

Applications are invited for the appointment of a SENIOR ASSISTANT ARCHITECT/PLANNER at a salary in accordance with A.P.T. Grade IV of the National Joint Council Scales (£675—£825 p.a.). The actual commencing point will depend upon qualifications and experience.

The successful candidate will be in charge of the Architectural Design Section of the department and must have experience in dealing with re-development schemes, housing layouts, and architectural control. This appointment involves considerable responsibility and provides a wide scope for an architect who is interested in the related architectural/planning problems of a County Planning Authority. The final qualification of the A.R.I.B.A., is an essential requirement and possession of the A.M.T.P.I. qualification would be an advantage.

Applications on forms obtainable from the undersigned should be completed and returned not later than the 24th March, 1955.

J. B. ROSS, A.R.I.C.S.,
County Planning Officer,

County Hall,
Newcastle-upon-Tyne, 1. 8981

MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS required for drawing offices in London, Edinburgh and various provincial offices.

Candidates must have had at least three years' architectural training, some experience in an architect's office, and be of Intermediate R.I.B.A. standard. London salary £442—£695 per annum. Rates elsewhere slightly less. Starting pay according to age and experience. Prospects of promotion and permanency.

State age and full details of training and experience to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, W.G.10/CA. 19 F9, Abell House, John Islip Street, London, S.W.1. 8375

RAWMARSH URBAN DISTRICT COUNCIL. HOUSING ARCHITECT.

Applications are invited for the position of Housing Architect on the staff of the Surveyor at a salary within Grade IV of the A.P.T. Division of the National Joint Council for Local Authorities Staffs, commencing at £765 and rising by two increments of £30 each to £825.

Applicants must be Associates R.I.B.A. with experience in housing estate development.

A house will be made available if required.

The appointment is subject to the provisions of the Local Government Superannuation Acts, and to the passing of a medical examination.

Applications, stating age and qualifications, details of experience together with copies of two recent testimonials must be delivered to the undersigned not later than Wednesday, 23rd March, 1955. G. F. CLEGG,
Clerk to the Council.

Council Offices,
Parkgate,
Nr. Rotherham. 8951

LONDON ELECTRICITY BOARD. STRUCTURAL ASSISTANTS & STRUCTURAL DRAUGHTSMEN.

Applications are invited for the above positions in the Construction Branch of the Chief Engineer's Department in Central London.

Applicants for the positions of STRUCTURAL ASSISTANTS in the Civil Engineer's Section should have experience in the design and detailing of either reinforced concrete or steelwork structures. Applicants for the positions of STRUCTURAL DRAUGHTSMEN should have a knowledge of building constructional requirements and some knowledge in detailing reinforced concrete or steel structures.

The posts are graded under Schedule "D," National Joint Board agreement as Grade 5—£672 to £777 and Grade 6—£535 10s. 0d. to £661 10s. 0d. per annum respectively, inclusive of London Allowance. Commencing salaries will be dependent upon qualifications and experience.

Application forms obtainable from Personnel Officer, 46/7, New Broad Street, London, E.C.2, to be returned completed by 24th March, 1955. Please enclose addressed envelope and quote ref.: V/1919/A on all correspondence. 8905

LONDON COUNTY COUNCIL.

Architects and surveyors required for safety regulations of theatres and special buildings, and for general building regulation work. Salaries up to £892 10s., according to experience. A.R.I.B.A. or A.R.I.C.S. essential. Particulars and application form from Architect (AR/EK/TBR/3), The County Hall, S.E.1. (848) 3487

MANCHESTER CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the following appointments on the permanent staff:—

(*a*) SENIOR ASSISTANT ARCHITECT. Salary A.P.T. Grade IV, £675—£825 per annum. Applicants must be A.R.I.B.A. with some years office experience.

(*b*) ARCHITECTURAL ASSISTANT. Salary—Basic Grade £650—£775 per annum. Applicants must have passed parts 1 and 2 of the R.I.B.A. Final examination or its equivalent and have had at least five years' experience, including the period spent in theoretical training.

(*c*) ARCHITECTURAL ASSISTANT. Salary Grades A.P.T.I/II. £500—£640 per annum. Applicants must have passed the Intermediate examination of the R.I.B.A. or its equivalent.

(*d*) TECHNICAL ASSISTANT/DRAUGHTSMAN. Salary Grade A.P.T. II £560—£640 per annum. Applicants should be experienced in the design and detailing of all types of school furniture.

(*e*) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. V £750—£900 per annum. Applicants must be Corporate Members of the R.I.C.S. (Quantities Division) and have had considerable experience in the preparation of Bills of Quantities and Specifications, Interim Valuations and settlement of final accounts for all classes of local authority building work.

(*f*) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. V £750—£900 per annum. Applicants must be suitably qualified and have had wide experience in the preparation of estimates for new building work and alterations to existing buildings.

(*g*) SENIOR ASSISTANT QUANTITY SURVEYOR. Salary Grade A.P.T. IV. £675—£825 per annum. Applicants must be Corporate Members of the R.I.C.S. (Quantities Division) and have had considerable experience in the preparation of Bills of Quantities and Specifications, Interim Valuations and settlement of final accounts for all classes of local authority building work.

(*h*) ASSISTANT QUANTITY SURVEYOR. Salary Basic Grade £650—£755 per annum. Applicants should have passed the final examination of the R.I.C.S. (Quantities Division) and have had at least five years' experience (including the period spent on theoretical training).

Further particulars and forms of application may be obtained from the City Architect, Box 488, Town Hall, Manchester 2. The completed form to be returned to the same address by 28th March, 1955. Canvassing is prohibited. 9002

CITY OF BIRMINGHAM. CITY ARCHITECT'S DEPARTMENT.

Applications are invited for the appointment as TECHNICAL ASSISTANT (HOUSING)—Grade A.P.T. IV (£675—£825 per annum)—at a commencing salary according to experience.

The successful candidate will be responsible for the investigation, layout and design of dwellings for numerous small sites in the City, and applicants should possess an appropriate professional qualification.

The post is superannuable, subject to a medical examination and to one month's notice on either side.

Applications, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned not later than 25th March, 1955.

Canvassing disqualifies.

A. G. SHEPPARD FIDLER,
City Architect.

Civic Centre, Birmingham, 1. 9003

LONDON COUNTY COUNCIL. ARCHITECT'S DEPARTMENT.

ARCHITECTURAL ASSISTANT (up to £739 10s.), interested in contemporary school design, required for Voluntary Schools Section. Duties mainly the preparation of schemes for development of school sites, and liaison with private architects at all stages in planning and design of new primary and secondary schools. Particulars and application forms, returnable by 31st March, from Architect (AR/EK/VS/2), The County Hall, S.E.1. (211) 8999

DEPARTMENT OF HEALTH FOR SCOTLAND: CHIEF ARCHITECT'S OFFICE: ARCHITECTS: Remuneration, for a 45½ hour week, £1,096—£1,420 per annum (somewhat lower for women).

The Civil Service Commissioners invite applications for three pensionable posts, Headquarters, Edinburgh. Age at least 35, on 1st March, 1955. Candidates must be Registered Architects (by examination) and be either Fellows or Associates of the R.I.B.A. In addition, for one post an A.I.L.A. qualification is desirable. All candidates must have wide professional experience in public or private practice.

Forms of application and further particulars from Establishment Officer (Room 30), Department of Health for Scotland, St. Andrew's House, Edinburgh, 1. Completed application forms must reach Department by 13th April, 1955. 8992

PADDINGTON BOROUGH COUNCIL

require QUANTITY SURVEYOR'S ASSISTANT A.P.T. Grade I (£530—£610 inclusive) (£10 p.a. less if under age 26). Candidates should have experience in preparation of estimates, taking-off, working up, abstracting, billing, site measurement and working up to final account stage. Inter R.I.C.S. or equivalent preferred. Write age, experience, qualifications, names of three referees, to the undersigned by 30th March, 1955 (Quoting A.207).

W. H. BENTLEY,
Town Clerk.

Town Hall,
Paddington Green, W.2. 8973

BOROUGH OF CHELMSFORD.
BOROUGH ENGINEER, SURVEYOR AND ARCHITECT'S DEPARTMENT.
CHIEF ASSISTANT ARCHITECT, GRADE A.P.T. IV (£675—£825).
ENGINEERING ASSISTANT, GRADE A.P.T. I (£500—£580).

The Chelmsford Borough Council invite applications for the above appointments, further particulars of which can be obtained from the Borough Engineer, Surveyor and Architect's Department, Municipal Offices, Chelmsford. Closing date, 5th April, 1955.

B. A. FRANCIS.
Town Clerk.
9007

CRAWLEY DEVELOPMENT CORPORATION require a JUNIOR ASSISTANT ARCHITECT, salary scale £520—£670 p.a., of R.I.B.A. Intermediate Examination standard and experienced in architectural practice. Contributory superannuation. Apply on forms from Chief Architect (Vacancy), Broadfield, Crawley, Sussex, by 28th March, 1955.

C. A. C. TURNER—*Chief Executive.*
9008

METROPOLITAN BOROUGH OF WOOLWICH.
BOROUGH ENGINEER'S DEPARTMENT.
ASSISTANT ARCHITECTS required. Salary Grades A.P.T. III—V (£600—£900), according to qualifications and experience, plus London weighting.

Application forms from Borough Engineer, Town Hall, Wcolwich, S.E.18, to be returned to Town Clerk by 31st March, 1955.

Canvassing disqualifies.
9009

COUNTY OF LEICESTER.
PRINCIPAL ASSISTANT ARCHITECT.
£1,121 5s.—£1,228 15s.

The successful applicant, who will be immediately responsible to the Assistant County Architect (Education) must be a registered architect with extensive experience in the design and construction of modern educational buildings and have held a post of considerable responsibility. Applications by 1st April on form obtainable from County Architect, (f), 123, London Road, Leicester.
9010

KINCARDINE COUNTY COUNCIL.

Applications are invited for appointment as an ARCHITECTURAL ASSISTANT in the office of the County Architect and Planning Officer, Stonehaven. Salary scale A.P.T. IV and V, £615 to £715. Applicants should (*a*) possess the Intermediate Certificate of a recognised Professional Institute and have had some years' practical experience or (*b*) possess the Final Certificate(s) of a recognised Professional Institute or the Diploma(s) of a School of Architecture. Medical examination under Superannuation Scheme. Applications, including the names of three referees, should be lodged with the undersigned not later than 1st April.

JOHN SLEVIN.
County Clerk.

33, Evan Street,
Stonehaven.
3rd March, 1955
8984

BROMSGROVE URBAN DISTRICT COUNCIL.
ARCHITECTURAL ASSISTANT.

The Council invite applications for the appointment of an ARCHITECTURAL ASSISTANT on the staff of the Engineer and Surveyor at a salary within the range of A.P.T. Grade II (New Grade) £560—£640. The commencing salary will be fixed in accordance with qualifications and experience.

Applicants should have passed the A.R.I.B.A. Intermediate Examination or its equivalent, and should have had experience in the preparation of plans, specification, etc., for architectural work usually undertaken by a local authority, and in particular, housing.

Housing accommodation will be made available, if in the opinion of the Council, it is warranted.

The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the person appointed will be required to pass a medical examination.

Applications, stating age, giving full particulars and qualifications and experience, together with one copy of a recent testimonial, must be delivered to the undersigned not later than Wednesday, 23rd March, 1955.

In addition the names of two persons to whom reference can be made must be enclosed with the application.

F. A. JESSOP.
Clerk to the Council.

Council House,
Bromsgrove
5th March, 1955.
8987

LANCASHIRE COUNTY COUNCIL.

Applications are invited for the following posts on the permanent staff of the County Architect's Department:—(*a*) SENIOR ASSISTANT QUANTITY SURVEYORS, A.P.T. Grade VI (£825—£1,000). (*b*) SENIOR ASSISTANT QUANTITY SURVEYORS, A.P.T. Grade V (£750—£900). (*c*) MEASURING SURVEYORS, A.P.T. Grade III (£600—£725). Successful candidates for posts (*a*) and (*b*) will be engaged mainly in taking off and billing quantities for major County Council building projects of all types. Successful candidates for posts (*c*) will be engaged in the measuring of variations and site works for major projects and the settlement of contractors' accounts. Applicants should have had experience of similar work in Surveyors' or Building Contractors' offices. Application forms, from County Architect, P.O. Box No. 26, Preston, returnable by 4th April, 1955, quoting Ref.: A/AJ.
9075

DERBYSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Vacancies for ARCHITECTS exist on the undermentioned grades:—

(*a*) A.P.T. Grade II—£560—£640 per annum. Qualifications: R.I.B.A. Intermediate.

(*b*) A.P.T. Grade IV—£675—£825 per annum. Qualifications: Registered Architect.

The department has an extensive programme of work of interest and variety.

N.J.C. conditions of service. Pensionable post. Canvassing disqualifies. Further details and application forms to be obtained from the County Architect, County Offices, St. Mary's Gate, Derby—to whom they must be returned before 2nd April, 1955.
9033

LONDON ELECTRICITY BOARD.
SENIOR DRAUGHTSMAN.

Applications are invited for the above position in the Design and Planning Branch of the Northern Sub-Area.

Applicants should have had training and experience in building construction and the design of steelwork and reinforced concrete structures, and be capable of preparing drawings and making calculations for the aiteration of existing premises and the conversion of basements into sub-stations and transformer chambers. Experience in the lay-out of electrical equipment up to 11 kV., whilst not essential, would be an advantage.

The post is graded under Schedule "D" of the National Joint Board agreement as Grade V—£572 to £777 per annum, inclusive of London Allowance.

Application forms obtainable from Personnel Officer, 46/7, New Broad Street, London, E.C.2, to be returned completed by 31st March, 1955. Please enclose addressed envelope and quote ref.: V/1925/A.
9064

CITY OF MANCHESTER.
CITY ARCHITECT'S OFFICE.

Applications are invited for the appointment of CHIEF ASSISTANT ARCHITECT (EDUCATION) on the permanent staff at a salary within J.N.C. Scale A. (£1,068 15s.—£1,228 15s.).

Candidates must be A.R.I.B.A. with wide practical experience, particularly in the design and construction of educational buildings, in all types of construction. The person selected will be required to take charge of an Architect's Section of the department engaged upon an annual Educational building programme costing in the region of one million pounds.

Further information and forms of application may be obtained from the Town Clerk, Town Hall, Manchester, 2, to whom they must be returned so as to be delivered not later than 28th March, 1955. Canvassing is prohibited.
9067

BOROUGH OF WIMBLEDON.
BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

Applications are invited for the appointment of an ARCHITECTURAL ASSISTANT on the established staff.

Salary in accordance with Grade A.P.T. I, £500 to £580 per annum, London Weighting additional. Applicants should have attended a full time course of Architecture and to have passed the R.I.B.A. Intermediate Examination or its equivalent; experience in municipal architectural work would be an advantage. The appointment is subject to the National Scheme of Conditions of Service, the provisions of the Local Government Superannuation Acts, and to a satisfactory medical report. Applications endorsed "Architectural Assistant," stating age, qualifications, former Local Government Service, present and previous appointments and experience, length of notice required to terminate present appointment, and the names of three referees, must be forwarded to the Borough Engineer and Surveyor by 1st April 1955. Candidates must disclose in writing to the undersigned, if, to their knowledge, they are related to any member or senior officer of the Council. Canvassing disqualifies.

FRANCIS J. O'DOWD.
Town Clerk.

Town Hall,
Wimbledon, S.W.19.
9065

BOROUGH OF WEYMOUTH AND MELCOMBE REGIS.
SENIOR ARCHITECTURAL ASSISTANT.

Applications for this appointment are invited from Architects who have passed the final examination of the R.I.B.A. and are Registered Architects.

Salary: Within Grade IV (£675—£825 per annum).

Candidates must have had considerable general architectural experience particularly in relation to flats.

A flat will be made available, if required, to the successful applicant.

Applications, accompanied by the names of three persons to whom reference may be made, must be received by me not later than 24th March, 1955.

PERCY SMALLMAN.
Town Clerk.

Municipal Offices,
Weymouth.
March, 1955.
9072

PERTH AND KINROSS JOINT COUNTY COUNCIL require ASSISTANT ARCHITECTS for the New Schools Section of their County Architect's Department. Salaries will be on scales within the A.P.T. range (£515 to £915 p.a.). Houses will be made available. Further particulars may be obtained from the County Clerk, County Offices, York Place, Perth, with whom applications on the prescribed form should be lodged as soon as possible.
9076

COUNTY BOROUGH OF ST. HELENS.

Applications are invited for the appointment of CHIEF ARCHITECTURAL ASSISTANT in the Borough Engineer's Department, within Grade A.P.T. V. The commencing salary will be within the salary scale of £780—£900, according to qualifications and experience. Applicants should be Registered Architects and Corporate Members of the R.I.B.A. and preference will be given to applicants who have had previous municipal experience in design and administration.

Housing accommodation will be made available if required by the successful candidate.

The appointment will be terminable by one month's notice and will be subject to the Local Government Superannuation Acts and medical examination.

Candidates must, when making application, disclose in writing whether to their knowledge they are related to any member of the Council or to a holder of any senior office under the Council.

Applications stating age, qualifications, present and past appointments and details of experience, accompanied by copies of three recent testimonials must be forwarded to M. Ward, M.I.Mun.E., A.M.T.P.I., Borough Engineer, not later than Thursday, 7th April, 1955.

Canvassing in any form will be deemed a disqualification.

Town Hall,
St. Helens.
9066

CITY OF BIRMINGHAM PUBLIC WORKS DEPARTMENT.

Applications are invited for the post of PLANNING ASSISTANT in the Town Planning Section.

Applicants should have passed the Intermediate Examination of the Town Planning Institute or hold a Higher National Certificate or equivalent qualifications.

Salary Grade A.P.T. II (£560/£640 per annum) in accordance with qualifications and experience.

The post is permanent, superannuable, subject to a medical examination and to one month's notice on either side.

Applications endorsed "Planning Assistant" stating qualifications, age and experience, together with the names of two persons to whom reference may be made, should reach the undersigned not later than the 26th March, 1955.

Canvassing disqualifies.

HERBERT J. MANZONI,
City Engineer and Surveyor.

Civic Centre,
Birmingham, 1.
9083

URBAN DISTRICT COUNCIL OF CORBY.
DEPARTMENT OF THE ENGINEER AND SURVEYOR.
SENIOR QUANTITY SURVEYOR.

Applications are invited for the above appointment at a salary in accordance with new Grade A.P.T. V (£750—£900), commencing at £750 per annum.

Applicants must have passed the final R.I.C.S. (Quantities Section) examination and be thoroughly experienced in the preparation of Bills of Quantities, adjustment of variations and settlement of final accounts. Previous experience of substantial contracts for local authority housing is desirable.

The provisions of the Local Government Superannuation Acts, 1937-1953, will apply to this appointment.

Housing accommodation will be made available to the successful candidate, if married.

Forms of application may be obtained from the undersigned, and completed forms must be received not later than Saturday, the 2nd April, 1955.

G. B. BLACKALL,
Clerk of the Council.

Council Offices,
Corby, Northants.
9th March, 1955.
9069

WILTSHIRE COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.

Applications invited from Chartered Architects for superannuable appointment of ASSISTANT ARCHITECT. Salary £675—£825.

Canvassing disqualifies.

Application forms from County Architect, County Hall, Trowbridge, returnable within 14 days of the appearance of this advertisement.

P. A. SELBORNE STRINGER,
Clerk of the County Council.
9079

BOROUGH OF WEYMOUTH AND MELCOMBE REGIS.
ARCHITECTURAL ASSISTANT.

Applications are invited from Architects with Housing and General experience who have passed the Intermediate examination of the Royal Institute of British Architects.

Salary, Grade II (£560—£640).

Applications accompanied by the names of three persons to whom reference may be made, must be received by me not later than 24th March, 1955.

PERCY SMALLMAN,
Town Clerk.

Municipal Offices,
Weymouth.
March, 1955.
9071

BOROUGH OF RUGBY.
ARCHITECTURAL ASSISTANT.

Required in Borough Surveyor's Department—Salary Grade A.P.T. I £500—£580 per annum. Application form from Borough Surveyor, Burford House, Rugby, to whom applications should be sent by 30th March, 1955.

T. L. DUFFY,
Town Clerk
9073

BOROUGH OF GRANTHAM.
SECOND ARCHITECTURAL ASSISTANT wanted in Borough Surveyor's department in A.P.T. Grade III (£600–£725). National Conditions of Service and Local Government Superannuation Act apply. Appointment is terminable by one month's notice. Good general experience, especially of housing, is essential, and previous local government service is desirable. A house is available.
Applications, quoting three referees, should be sent to the Borough Surveyor, Guildhall, Grantham, by 22nd March.
JOHN F. GUILE.
Town Clerk.
Guildhall,
Grantham. 9023

WARWICKSHIRE COUNTY COUNCIL.
ARCHITECT'S DEPARTMENT.
Applications are invited for the following appointments:—
(*a*) ARCHITECTURAL ASSISTANT, grade A.P.T. II, commencing salary £550, rising to £640 per annum. Applicants should have passed the Intermediate examination of the Royal Institute of British Architects.
(*b*) ASSISTANT ARCHITECT, grade A.P.T. IV, salary £675 to £825 per annum. Applicants should be Members of the Royal Institute of British Architects and have had experience in the design and construction of large buildings. Experience in non-traditional forms of construction will be an advantage.
(*c*) JUNIOR QUANTITY SURVEYING ASSISTANT, grade A.P.T. I–II, commencing salary £500, rising to £640 per annum.
Appointments are subject to the provisions of the Local Government Superannuation Act 1937–53.
Application to be made on a form which can be obtained from G. R. BARNSLEY, F.R.I.B.A., County Architect, Shire Hall, Warwick.
I. EDGAR STEPHENS,
Clerk of the Council.
Shire Hall,
Warwick.
7th March, 1955. 9022

LONDON ELECTRICITY BOARD.
ARCHITECTURAL ASSISTANTS.
ARCHITECTURAL DRAUGHTSMEN.
Applications are invited for the above positions in the Architect's Section of the Chief Engineer's Department in Central London.
Applicants for positions as ARCHITECTURAL ASSISTANTS should be studying for or have passed the Intermediate examination of the R.I.B.A., be capable draughtsmen and have had several years' experience in an Architect's office.
Applicants for positions as ARCHITECTURAL DRAUGHTSMEN should be neat draughtsmen and preferably have had several years' experience in an Architect's office.
The posts are graded under Schedule "D" of the National Joint Board agreement as follows:—
ARCHITECTURAL ASSISTANTS. Grade 5—£672 to £777 per annum, inclusive of London Allowance.
ARCHITECTURAL DRAUGHTSMEN. Grade 6—£535 10s. to £661 10s. per annum, inclusive of London Allowance.
Application forms obtainable from Personnel Officer, 46/7, New Broad Street, London, E.C.2, to be returned completed by the 26th March, 1955. Please enclose addressed envelope and quote ref.: V/1924/A. 9031

BOROUGH OF TWICKENHAM.—ARCHITECTURAL ASSISTANT. Applications are invited for the post of ARCHITECTURAL ASSISTANT at a salary in accordance with Grade A.P.T. II (£560–£640), plus weighting. Applications stating age, experience, qualifications, etc., together with two recent testimonials should be received by the Borough Engineer, York House, Twickenham by 26th March, 1955. N.J.C. Conditions will apply and superannuation is payable. Canvassing will disqualify and applicants must state whether they are related to any member of the Corporation or Senior Officer. W. H. JONES Town Clerk, Municipal Offices, Twickenham, March, 1955. 9021

ISLE OF ELY COUNTY COUNCIL.
COUNTY ARCHITECT'S DEPARTMENT.
Applications are invited for the following appointments on the Staff of the County Architect:—
(*a*) PRINCIPAL ASSISTANT ENGINEER. Within Grade A.P.T. IV, £675–£825 (in control of Heating and Electrical Engineering).
(*b*) Three JUNIOR ARCHITECTURAL ASSISTANTS. Misc. I/II/III, £345–£485. (This is a busy office with excellent and varied experience available).
All the posts are permanent, subject to the National Joint Council Scheme of Conditions of Service, the Local Government Superannuation Act, and to a medical examination.
Intending applicants are to apply for forms for the posts in which they are interested to the County Architect, County Hall, March, to whom they are to be returned not later than Thursday, 31st March, 1955.
R. F. G. THURLOW.
Clerk of the County Council. 9024

LONDON COUNTY COUNCIL.
Grade III ENGINEERS (salary up to £892 10s.) and SURVEYING ASSISTANTS (up to £739 10s.) required in District Surveyor's Service. Qualifications A.R.I.B.A., A.M.I.Str.E., or A.R.I.C.S.: structural knowledge essential. Particulars and application forms from Architect (AR/EK/DS/2), County Hall, S.E.1. (1025). 3511

WALTHAMSTOW COMMITTEE FOR EDUCATION.
ARCHITECT'S DEPARTMENT.
Applications are invited for permanent appointments in the office of the Architect to the Committee, Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S., at salaries in accordance with new National Scales, as follows:—
(*a*) ASSISTANT ARCHITECT. Grade A.P.T. III (£600 × £25–£725 per annum).
Applicants must be Associate Members of the R.I.B.A. or hold an equivalent qualification and have worked in an Architectural office for a period of at least three years.
(*b*) ARCHITECTURAL ASSISTANT. Grade A.P.T. II (£560 × £20–£640 per annum).
Applicants should have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised Schools of Architecture, and have worked in an Architectural Office for a period of at least two years.
(*c*) Two ARCHITECTURAL ASSISTANTS. Grade A.P.T. I (£500 × £20–£580 per annum).
Applicants should have attended a full-time course of Architecture and have passed the R.I.B.A. Intermediate Examination or its equivalent at one of the recognised Schools of Architecture and have worked in an Architectural Office for a period of at least one year.
In addition to the above salaries, a London Weighting is payable per annum of £30 if 26 years of age and over, or £20 if 21 to 25 years of age.
Application forms to be obtained from and returned to the Borough Education Officer, Town Hall, Forest Road, Walthamstow, E.17, within two weeks of the appearance of this notice. 9046

NEWCASTLE REGIONAL HOSPITAL BOARD.
REGIONAL ARCHITECT'S DEPARTMENT.
APPOINTMENT OF SURVEYING ASSISTANT.
Applications are invited for the appointment of a permanent (superannuable) SURVEYING ASSISTANT on the Headquarter's staff of the Regional Architect in Newcastle. Candidates must have passed the Intermediate Examination of the Royal Institution of Chartered Surveyors, or an examination recognised by the Institution as equivalent.
The commencing salary within the Grade £465 × £25 (1) × £20 (8) to £650 per annum, will depend upon the applicant's age and amount of practical experience since passing the Intermediate Examination but will not exceed £550 per annum.
Candidates should be experienced in surveying sites and buildings and the man appointed will be the junior member of a team responsible for completing a survey of all hospital sites and buildings in the Region, for preparing folios of up-to-date record-plans and for making inspections of lands and properties which the Board may consider acquiring.
The terms of appointment and conditions of service will be as set out in the Whitley Council Circulars P.T.B. 19, 20 and 40 relating to professional and technical staffs of Regional Hospital Boards. The successful candidate will be required to pass a medical examination.
Applications stating age, qualifications, past and present appointments, present salary and details of training and experience, together with the names of three referees, should be forwarded to the Secretary not later than 15th April, 1955.
"Dunira,"
Osborne Road,
Newcastle-upon-Tyne, 2. 9038

SURREY COUNTY COUNCIL.
Applications invited for following appointments:—
(1) ASSISTANT ARCHITECT, GRADE III, £600 × £25–£725 p.a., plus London Allowance. Pref. given Associate Members R.I.B.A.
(2) ASSISTANT QUANTITY SURVEYOR, GRADE V, £750 × £30–£900 p.a., plus L.A. Must have passed final R.I.C.S. and have experience of handling all duties for large building contracts.
(3) ASSISTANT QUANTITY SURVEYOR, GRADE IV, £675 × £30–£825 p.a., plus L.A. Experienced taking off, site measuring, interim valuations and final accounts and must have passed final R.I.C.S.
(4) ASSISTANT QUANTITY SURVEYOR, GRADE III, £600 × £25–£725 p.a., plus L.A. Experienced as Grade IV above, but need not have passed final.
(5) MAINTENANCE SURVEYING ASSISTANT, GRADE II, £560 × £20–£640 p.a., plus L.A. Pref. given applicants who have passed Inter. R.I.C.S. (Bldg. Sub-Div.). Experienced prep. spec's., schedules of dilaps., and detailed estimates for gen. maint. works.
Full details and present salary, accompanied by copies of three recent testimonials to County Architect, County Hall, Kingston, by 25th March, 1955. 9047

PERTH AND KINROSS JOINT COUNTY COUNCIL wish to employ private firms of Architects for part of their New Schools Programme throughout the Combined County of Perth and Kinross. Any firms interested should write to the County Clerk, County Offices, York Place, Perth, stating what experience, if any, they have had in the planning and erection of new schools. 9077

DORSET COUNTY COUNCIL require ARCHITECTURAL ASSISTANT (A.P.T. Grade II—£560—£640).
Candidates must be suitably qualified.
Application forms from the Clerk, County Hall, Dorchester, to be returned by 23rd March. 9041

Architectural Appointments Vacant

4 lines or under, 7s. 6d.: each additional line, 2s.

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she or the employment is excepted from the provisions of the Notification of Vacancies Order, 1952.

BUILDING SURVEYING ASSISTANT (about R.I.C.S. Final Standard) with at least two years' practical experience required by City firm of Chartered Surveyors & Architects. 3925

ARCHITECTURAL ASSISTANT: Intermediate approaching final. Commercial and industrial work; large-scale contracts. Watson, Johnson, Stokes, Victoria Square, Birmingham. 4895

ASSISTANT required in busy practice in West End, in early twenties, about Intermediate R.I.B.A. standard. Excellent opportunities for gaining all-round experience. Box 5092.

RONALD WARD & PARTNERS require several ARCHITECTURAL ASSISTANTS. Apply 29, Chesham Place, Belgrave Square, S.W.1, or telephone Belgravia 3361. 7023

ARCHITECTURAL ASSISTANT required (Inter. standard) in S.W. London. State age, experience and salary required, to Box 8913, or telephone KEN 6221/2187.

INTERMEDIATE and Post-R.I.B.A. standard ASSISTANTS required urgently in London office specialising in commercial buildings of contemporary design. Good salaries, five-day week. Holidays this year. Lewis Solomon Son & Joseph. Holborn 5108 or 7082. 8920

R.I.B.A. INTERMEDIATE and SENIOR ASSISTANTS required in office dealing with Factories and Commercial buildings in London. Write or telephone Eric Firmin & Partners, 10, Manchester Square, W.C.1. Welbeck 4339. 8921

PITE, SON & FAIRWEATHER invite applications from ASSISTANT ARCHITECTS for appointments in their office in connection with interesting work on hospitals, schools and housing. Reply by letter to 6, Queen Anne's Gate giving full particulars of qualifications, experience and salary required. 8980

ARCHITECTURAL ASSISTANT required for immediate vacancy. Practical experience and constructional design ability essential. Salary up to £750 p.a., according to age and experience. Applications by 18th March, giving full details to Read and McDermott, F.R.I.B.A., 18, High Street, Maidstone. 8923

"THE ARCHITECT'S JOURNAL" requires a DRAUGHTSMAN, to assist in the preparation of drawings for Working Details and Information Sheets. Good draughtsmanship, a knowledge of building construction, and a keen interest in the above type of work are necessary. Write to the Editor (Information Sheets), 9, Queen Anne's Gate, S.W.1, stating age, architectural training, and experience. 901

IMPERIAL CHEMICAL INDUSTRIES LIMITED, Plastics Division, requires an ARCHITECTURAL ASSISTANT in the Engineering Department at Welwyn Garden City. Applicants should have passed the Intermediate examination of the Royal Institute of British Architects and it would be to advantage if they had spent a few years in an Architect's office. Five-day, 39-hour week. Write for application form to The Staff Manager, I.C.I. Ltd., Plastics Division, Black Fan Road, Welwyn Garden City, Herts. 8954

INTERMEDIATE Standard ASSISTANTS required by Central London Office with large varied practice. Good salary to applicants interested in modern structural design. Write, stating experience and salary required to T. P. Bennett & Son, 43, Bloomsbury Square, W.C.1. 8949

SENIOR ASSISTANT required; salary according to ability. Five-day week. 'Phone London Wall 3825 or write Gordon & Gordon, Finsbury House, Blomfield Street, E.C.2. 8967

CLIFFORD TEE & GALE, F/F.R.I.B.A., require ASSISTANT in their Birmingham Office for work on Testing Establishments and other interesting projects. Please apply to 43, Frederick Road, Birmingham, 15. (Edgbaston 3676). Five-day week. 8958

ARCHITECTURAL STAFF, all grades, wanted, interesting and varied work of contemporary character; light and airy offices. Apply J. Seymour Harris & Partners, 4, Greenfield Crescent, Edgbaston, Birmingham, 15. 8786

MESSRS. NORTH & PARTNERS are seeking an ASSISTANT with general experience in surveys of existing properties and building sites. As the practice extends throughout the whole of Gt. Britain the successful applicant must be prepared to travel. Ability to assist generally in the drawing office would be an added advantage. Salary according to experience. Reply to North & Partners, Maidenhead. 8807

ARCHITECTS' ASSISTANTS required by a large Chain Store organisation. Salary based on previous experience. Subsidised Staff Canteen. Staff Pension and Life Assurance Scheme. Write, giving details of past experience, age, etc., to Box AJ 189, LPE, 55, St. Martin's Lane, London, W.C.2. 8784

SENIOR ASSISTANT ARCHITECTS and ASSISTANT ARCHITECTS of Final A.R.I.B.A. and Inter R.I.B.A. standard, respectively, required for busy N.W. London office engaged on interesting and varied works of contemporary character, including office and industrial schemes, multi-storey flats and maisonettes, Private and Local Authority housing. Superannuation scheme and five-day week. Applications stating age, experience, qualifications and salary expected, to Sidney Greenwood, A.R.I.B.A., 33, Bunns Lane, Mill Hill, London, N.W.7. 8944

ASSISTANTS required for firm of Architects in Portland Place area, the following qualifications being essential:—
(*a*) Should be about Intermediate standard;
(*b*) Excellent drafting ability;
(*c*) Several years' office experience;
(*d*) Sound knowledge of construction;
(*e*) Keen interest in modern architecture.
Box 8564.

ARCHITECTURAL ASSISTANT required, Intermediate standard, for busy West End practice. Opportunity for young man wishing to obtain good general experience and use of initiative. Salary according to experience. Apply Eric H. Davie, A.R.I.B.A., A.M.T.P.I., Staff Architect, Hillier, Parker, May and Rowden, 77, Grosvenor Street, W.1. 8966

ARCHITECT'S ASSISTANT required in small Central London Office. Up to or over Intermediate standard. Surveys, working drawings, details, etc. Office experience necessary. Write Box 8965.

ARCHITECTURAL ASSISTANTS required, for contemporary office. Reply, stating qualifications, experience and salary required. C. H. Elsom, F.R.I.B.A., 44, Catherine Place, S.W.1. VICtoria 4304. 8887

ARCHITECTURAL ASSISTANT required of Junior or Final R.I.B.A. standard. Must be first class draughtsman, able to take charge of jobs if necessary. Full knowledge of details and specifications important. Varied and busy practice in country area. Reply, stating salary required and when free, to T. R. Bateman, A.R.I.B.A., 21, Vine Street, Evesham. 8961

ARCHITECTURAL ASSISTANTS, SENIOR and JUNIOR, required for busy private offices in Gravesend and Rochester, Kent. Reply stating age, experience, salary, etc., to George E. Clay & Partners, AA.R.I.B.A., 198, Parrock Street, Gravesend, Kent. 8896

ARCHITECTURAL ASSISTANT, intermediate to final standard, required for preparation of working drawings and details from Architect's sketches. Good working conditions, canteen and sports facilities. Apply in writing, giving age and details of experience, to the Personnel Officer, Albert E. Reed & Co., Ltd., Aylesford Paper Mills, Larkfield, Nr. Maidstone, Kent. 8898

ARCHITECTURAL ASSISTANT required for appointment to the permanent staff at the Westminster office of an Educational Trust. Apply, stating experience, age and salary required, to the Secretary. Box 8900.

ARCHITECTURAL ASSISTANT required by North Eastern Brewery. Salary up to £450 per annum, according to experience. Housing Allowance if rent-free house not provided; pension scheme and bonus system. Apply Box 8894.

ARCHITECTURAL staff vacancies exist for TRACERS and JUNIOR and SENIOR ASSISTANTS. Varied and interesting work in hand. Congenial working conditions. Every encouragement given to capable men to accept responsibility and work on own initiative. Full particulars to Naylor, Sale & Widdows, St. Mary's Chambers, St. Mary's Gate, Derby. 8892

BRONEK KATZ AND R. VAUGHAN have vacancies for one SENIOR and one JUNIOR ASSISTANT. 17, Great Cumberland Place, W.1. AMBassador 3740. 8891

SENIOR ASSISTANT ARCHITECTS required for progressive firm of Architects in Yorkshire. Commencing salary £1,200, but only first-rate qualified men with considerable experience should apply. Work is varied, but experience in Commercial, Industrial or Technical Educational buildings an advantage. Superannuation scheme in operation. Prospects unlimited. Apply J. G. L. Poulson, 29, Ropergate, Pontefract. 8901

ARCHITECTURAL ASSISTANT required by Midland firm for responsible position in combined architectural and engineering office. Good salary and prospects for applicant interested in modern methods of construction and prefabrication in all classes of buildings. Apply in writing giving full details of experience and salary required to Box 8910.

JUNIOR and intermediate ARCHITECTURAL ASSISTANTS required. Applicants with knowledge of commercial work, including offices and stores, etc. London experience an advantage. Box 8481.

ARCHITECTS.—SENIOR ARCHITECTURAL ASSISTANTS required immediately for a wide variety of work. Salary range £700—£975 per annum. Superannuation scheme.
Application should be made in writing to:—Kenneth F. Masson, A.R.I.B.A., Chief Architect, S.C.W.S. Ltd., 119, Paisley Road, Glasgow C.5. 8565

ARCHITECTURAL ASSISTANT required, capable, usual office experience, specifications, land and property surveys. Age, experience, salary to Gilbert & Hobson, 69a, Castle Street, Farnham, Surrey. 8732

ARCHITECTURAL DRAUGHTSMAN required by multiple shop company, interesting and varied work, involves a certain amount of travelling, 5-day week, staff canteen, pension scheme, write stating age, qualifications, salary required, to Box 8529.

ARCHITECT'S ASSISTANTS required (1 Senior and 2 Juniors) for West End Office. Write, stating full particulars and salary required, to Box 8725.

REQUIRED for Architects' office, Central London area, young qualified ASSISTANTS interested in design and construction. Write, stating experience and salary required. Box 2325.

CLIFFORD TEE & GALE, F/F.R.I.B.A., require SENIOR and JUNIOR ASSISTANTS in their Westminster Office on Research Laboratories and other interesting projects. Please apply to 5, Buckingham Palace Gardens, S.W.1. (Sloane 2296). Five-day week 8660

WEST END Architects require male and female ASSISTANTS, Inter. and Final standard for industrial and commercial buildings, two years' office experience essential. Salary £500/£750 according to experience.—Ring MAYfair 3245. 9004

ARCHITECTURAL DRAUGHTSMAN required by multiple shop Co., interesting and varied work, involves a certain amount of travelling, 5-day week, staff canteen, pension scheme. Write, stating age, qualifications, salary required, to Box 9005.

ARCHITECTURAL ASSISTANTS, Final and Intermediate standard, for Schools, Churches, etc. Apply, giving details of experience and salary required, to J. C. Prestwich & Sons, M.A., F/A.R.I.B.A., Bradshawgate Chambers, Leigh, Lancs. 9006

TWO ARCHITECTURAL ASSISTANTS required to work in small team on variety of building projects. Highest salary to suitable applicants. Write Box 8990.

LONDON Architect (Public Buildings) requires competent DRAUGHTSMAN ASSISTANT. Box 8991.

DRAUGHTSMAN required by designers and builders of non-traditional housing. Scope for advancement. Starting salary: £9 weekly.—Unitroy Limited, 31/33, High Holborn, W.C.1. 8733

ARCHITECTURAL ASSISTANTS, senior and junior, required for general country practice. Write, stating age, training, experience, salary required, and when free, to: Forsyth Lawson, Cunningham & Partners, 30, Horse Fair, Banbury, Oxon. 9001

KENSINGTON. ASSISTANT wanted, Inter. Standard, small busy office, interesting work, 5-day week. Salary according to capabilities.—Phone WESTern 4841. 9000

SAMUEL MORRISON & PARTNERS require qualified ASSISTANT ARCHITECTS and ASSISTANTS of Intermediate standard. Work includes industrial design and the development of prefabricated structures, and contemporary factories, shops, houses and schools in various parts of the country. Salary range £400—£750; interview expenses paid. St. Alkmund's House, Belper Road, Derby. 8998

ARCHITECTURAL ASSISTANTS, Senior and Junior required in busy provincial office for varied and interesting work. Flat accommodation offered with senior post, help given if accommodation required for junior post. Write, stating experience and salary required, to:—Ruddle & Wilkinson, F/L/A.R.I.B.A., Long Causeway Chambers, Peterborough. Tel.: Peterborough 5248/9. 8997

ARCHITECTURAL ASSISTANTS required by BBC in London for work on design of studio, transmitter and office premises. Candidates should be up to Intermediate or Final R.I.B.A. standard and have had some design office experience. Salary in scales £545 to £755 or £645 to £880 according to qualifications and experience. Requests for application forms to Engineering Establishment Officer, Broadcasting House, London, W.1, within 7 days, quoting Ref.: E.22 AJ. 8996

ARCHITECT for busy N.E. Midlands offices. Qualified, experienced, senior man required. Good opportunity and salary for keen worker. Apply stating present salary, availability, etc. Box 8994.

QUANTITY SURVEYOR for busy N.E. Midlands offices (two required). Housing accommodation available. Fully experienced men required, good opportunity and salary. Apply, stating present salary, availability, etc. Box 8995.

ARCHITECTURAL DRAUGHTSMAN required with office experience, efficient draughtsmanship essential. Salary £8 to £12 per week according to experience. Apply, in writing with full particulars of experience, to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, W.C.2. 8993

ARCHITECTURAL ASSISTANTS (Two) of Intermediate standard, with office experience, required in Midlands office for interesting works programme. Write, stating full particulars and salary required, to Box 8985.

ARCHITECTURAL ASSISTANT required in small private practice. Should be quick, neat draughtsman of Intermediate standard, preferably with office experience. Apply in writing Deacon & Laing, F/A.R.I.B.A., 9, St. Paul's Square, Bedford. 8986

ARCHITECTURAL ASSISTANT required, fully qualified, with office experience for small busy Chancery Lane office, varied and interesting work. Salary in accordance with age and experience. Apply, in writing with full particulars of experience and salary required, to R. Jelinek-Karl, F.R.I.B.A., 22, Chancery Lane, W.C.2. 9084

THE Architect's Department, Ind Coope & Allsopp Ltd., The Brewery, Burton-on-Trent, require a Senior and a Junior ARCHITECTURAL ASSISTANT for their Northern Office in Leeds.
The Senior Assistant should be an Associate Member of the R.I.B.A., and have office experience. The salary range for this appointment is £550—£850.
The Junior Assistant should be nearing, or just passed Intermediate standard, with a commencing salary of £375.
In the first place both appointments will be temporary, but after a probationary period transfer to the Permanent Staff will be considered with participation in a contributory Superannuation Scheme. A five-day week is in operation, and the Department is engaged on a considerable and interesting programme.
Particulars of training, experience, past and present appointments and qualifications, together with testimonials; stating age and whether married or single, should be sent to: The Chief Architect, Ind Coope & Allsopp Ltd., The Brewery, Burton-on-Trent. 8983

IMPERIAL CHEMICAL INDUSTRIES LIMITED has a vacancy for an ARCHITECTURAL ASSISTANT to work in their London offices. Candidates should be Associate Members of the R.I.B.A. between the age 25—35 and should have a thorough knowledge of architectural works, particularly in regard to the design and construction of offices, canteens, laboratories, housing and warehouses. Applications stating age, qualifications and experience, should be sent to Head Office & Regions Staff Department, Imperial Chemical Industries Limited, I.C. House, Millbank, S.W.1. 8982

ARCHITECTURAL ASSISTANT (male or female) required in private practice in Cotswold rural area, exceptionally varied work. Must be excellent draughtsman, able to detail and carry out surveys, car driver. Please give very full particulars of experience, salary required, married or single. Box 9011.

NAIROBI: Experienced ASSISTANT preferably qualified for expanding practice. Must be able to work quickly, accurately, with minimum supervision. Salary up to £100 p.m. Write immediately, quoting Box OSS 74/1, Overseas Technical Service, 5, Welldon Cres., Harrow, Middlesex. 9055

PERSONAL ASSISTANT required for small office having interesting work in hand. Applicant should be at least Inter. standard and interested in interior design and able to take charge of small schemes. Write stating age, experience, and salary required to Jack Godfrey-Gilbert, A.R.I.B.A., at 1A, Linden Gardens, London, W.2. 9059

ASSISTANT urgently required in Architectural Section of firm of Chartered Surveyors to work largely on own initiative. R.I.B.A. qualification desirable. Salary according to age and experience. Apply R. E. J. Chew, A.R.I.B.A., Browett Taylor & Co., Chartered Surveyors, 3 & 4, Lincoln's Inn Fields, W.C.2. Tel.: CHA. 8275. 9053

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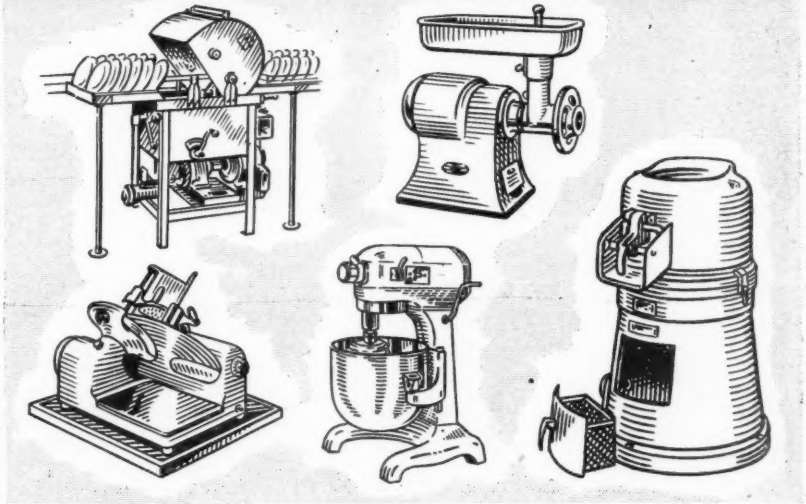

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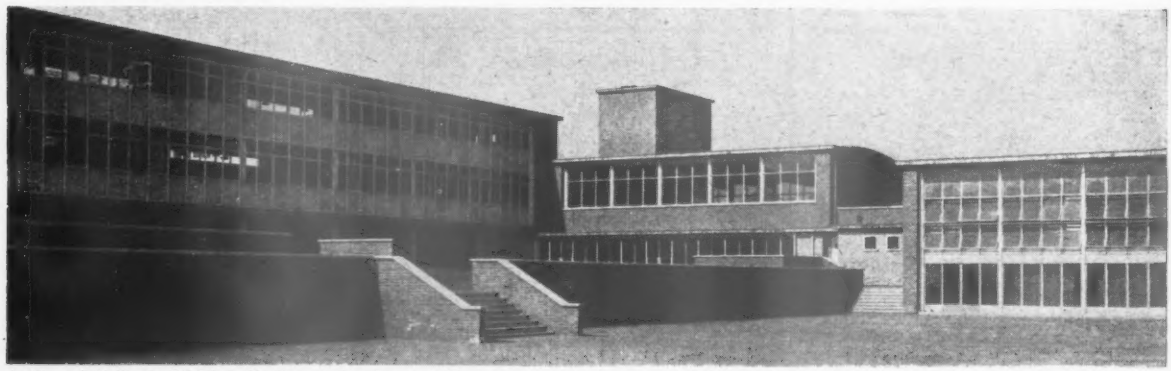
Alphabetical Index to Advertisers

	PAGE
Acrow (Engineers), Ltd.	cxvii
Alexandria Trading Corpn., Ltd.	xcv
Architectural Press, Ltd., The	cii
Armstrong Cork Co., Ltd.	lxiv
Austin, James, & Sons (Dewsbury), Ltd.	iv
Automatic Pressings, Ltd.	cxvii
Ayrshire Dockyard Co., Ltd.	xcix
Baldwin, Son & Co., Ltd.	cvi
Batley, Ernest, Ltd.	civ
Baume & Co., Ltd.	lviii
Benham & Sons, Ltd.	lx
Berry, Wiggins & Co., Ltd.	lxxvi
Birmid Industries, Ltd.	xxv
Blacknell, H. & H., Ltd.	xcvi
Blundell, Spence & Co., Ltd.	xxviii
Boulton & Paul, Ltd.	cvii
Bowaters Building Boards, Ltd.	lxxxviii
Briggs, William, & Sons, Ltd.	ix
British National Electrics, Ltd.	lvii
British Thomson-Houston Co., Ltd., The	xxxiii
British Titan Products Co., Ltd.	lxxix
British Trolley Track Co., Ltd.	xlviii
Broad & Co., Ltd.	cvi
Broads Manufacturing Co., Ltd.	ii
Brockhouse Steel Structures, Ltd.	ciii
Buckwyn Constructions, Ltd.	cxvii
Cable Makers' Association, The	lxii
Catesbys Contracts & Export, Ltd.	cvi
Cellactite & British Uralite, Ltd.	xxxvii
College of Estate Management	cxiv
Conder Engineering Co., Ltd.	xcii
Conex-Terna, Ltd.	lxvi
Copperad, Ltd.	ci
Copper Development Association	xxxvi
Courtney, Pope, Ltd.	lxxxiv
De La Rue, Thos., & Co., Ltd.	xliv, xlv
Demolition & Construction Co., Ltd.	l
Denton Edwards Paints, Ltd.	xcix
Dignus, Ltd.	lv
Docker Bros.	xliii
Dunlop Rubber Co., Ltd.	lix
Dunlop Special Products, Ltd.	lxxvii
Econa Modern Products, Ltd.	civ
Edison Swan Electric Co., Ltd., The	xx, xxi, li
Ellis, John, & Sons, Ltd.	xcviii
Ellis School of Architecture	cxv
Engineering & Lighting Equipment Co., Ltd.	lxxv
Evode, Ltd.	v
Expanded Metal Co., Ltd., The	xxii
Expandite, Ltd.	liv
Fencing & Gates, Ltd.	cxv
Finlock Gutters, Ltd.	xv
Furse, W. J., & Co., Ltd.	cxv
Gas Council, The	liii
Gaskell & Chambers, Ltd.	xviii
Glazed & Floor Tile Manufacturers' Association	lxvii
Greenwood & Hughes, Ltd.	lxxiv
Greenwood's & Airvac Ventilating Co., Ltd.	ii
Gulf Radiators, Ltd.	xxix
Gyproc Products, Ltd.	xlii
Gypsum Mines, Ltd.	xcv
Halden, J., & Co., Ltd.	civ
Hall, Robt. H., & Co. (Kent), Ltd.	xxxiv
Harris & Sheldon (Electrical), Ltd.	xciii
Harris & Sheldon (Joinery), Ltd.	xxxix
Harvey, G. A., & Co. (London), Ltd.	cv
Hathernware, Ltd.	cxv
Hawkesley Construction Co., Ltd.	lxviii
Higgs & Hill, Ltd.	xi
Hill Aldam, E., & Co., Ltd.	xxxii
Hills (West Bromwich), Ltd.	lxxxi
Hobart Manufacturing Co., Ltd., The	cxiii
Holoplast, Ltd.	xiv
Homan & Rodgers, Ltd.	xcviii
Honeywell-Brown, Ltd.	xxiii
Hope, Henry, & Sons, Ltd.	lxxxvi
Hume Atkins, Ltd.	cv
Ibstock Brick & Tile Co., Ltd.	cxvi
Imperial Chemical Industries, Ltd.	lxxii
Imperial Smelting Corporation	lxxxv
International Correspondence Schools	cxv
International Paints, Ltd.	lxiii
Invisible Panel Warming Association	cvii
Jenson & Nicholson, Ltd.	viii
Jones & Broadbent, Ltd.	ciii
King, J. A., & Co., Ltd.	xcvii
Kingfisher, Ltd.	lii
Lamont, James H., & Co., Ltd.	xcvii
Leaderflush, Ltd.	lxi
Lignacite (N.E.), Ltd.	cviii
Main, R. & A., Ltd.	xvi
Marley Tile Co., Ltd., The	xii, xiii
Mason, Joseph, & Co., Ltd.	lxix
McCarthy, M., & Sons, Ltd.	cxv
McKechnie Brothers, Ltd.	cviii
Metal Window Association, The	lxxxvii
Midland Electric Manufacturing Co., Ltd.	lxxx
Mills Scaffold Co., Ltd.	cxviii
Milsom's Patent Precast (Vermiculite) Cladding	cvi
National Federation of Clay Industries, The	xxv
Negus, W. & M., Ltd.	cxi
Patent Glazing Conference, The	xxx, xxxi
Permanite, Ltd.	xiv
Philips Electrical, Ltd.	x
Phoenix Rubber Co., Ltd.	li
Pilkington Brothers, Ltd.	v
Pollard, E., & Co., Ltd.	xiii
Radiation Group Sales, Ltd.	xxxvii
Rapid Floor Co., Ltd., The	xxv
Redland Tiles, Ltd.	xlvi
Rentokil, Ltd.	c
Richardson & Starling, Ltd.	xcv
Robertson Thain, Ltd.	lxx
Ruberoid Co., Ltd., The	lvii
Runnymede Rubber Co., Ltd.	lxxxi
Sanders, William, & Co. (Wednesbury), Ltd.	lxi
Sankey-Sheldon, Ltd.	xc
Saro Laminated Wood Products, Ltd.	lxxvii
Schori Metallising Process, Ltd.	cv
Semtex, Ltd.	x
Shell-Mex & B.P., Ltd.	xxiv
Siegwart Floor Co., Ltd.	cxvi
Smith & Rodger, Ltd.	xxxv
Smith's English Clocks, Ltd.	cv
Sommerfelds, Ltd.	iv
Stelcon (Industrial Floors), Ltd.	civ
Stella Building Products, Ltd.	xc
Stott, James, & Co. (Engineers), Ltd.	xvi
Sundeala Board Co., Ltd.	xci
Surrey Concrete, Ltd.	xcv
Teleflex Products, Ltd.	x
Thermacoust, Ltd.	x
Thompson, John (Beacon Windows), Ltd.	lxxxix
Timber Development Association, Ltd.,	vi
Tretol, Ltd.	xciv
Troughton & Young (Lighting), Ltd.	lxv
United Kingdom Provident Institution	
United Steel Companies, Ltd., The	
Val de Travers Asphalte, Ltd.	xciv
Venus Pencil Co., Ltd.	lxxii
Vigers Bros., Ltd.	xl
Walker, Crosweller & Co., Ltd.	cxv
Ward & Co.	c
Wardle Engineering Co., Ltd., The	ci
Weatherfoil Heating Systems, Ltd.	lii
Williams & Williams, Ltd.	xliii
Wright, Anderson & Co., Ltd.	

For Appointments (Wanted or Vacant), Competitions Open, Drawings, Tracings, etc., Education, Legal Notices, Miscellaneous, Property, Land and Sales, see cix, cx, cxi, cxii, cxiii, cxiv, cxv.



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PAGE
xxvi
cxii
xxx, xxxi
xlv
xc
lx
v
xii
xxxvii
xxv
xlvi
c
xcv
lxx
lvii
lxxxi
),
lxi
xc
lxxvii
cv
x
xxiv
cxvi
xxxv
cxv
lv
civ
xc
xvi
xci
xcvi
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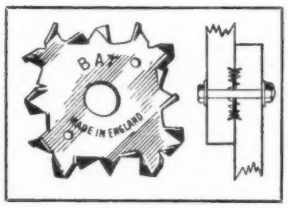

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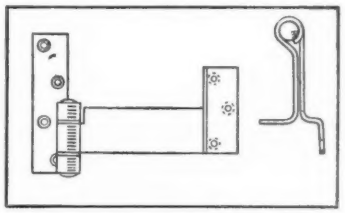

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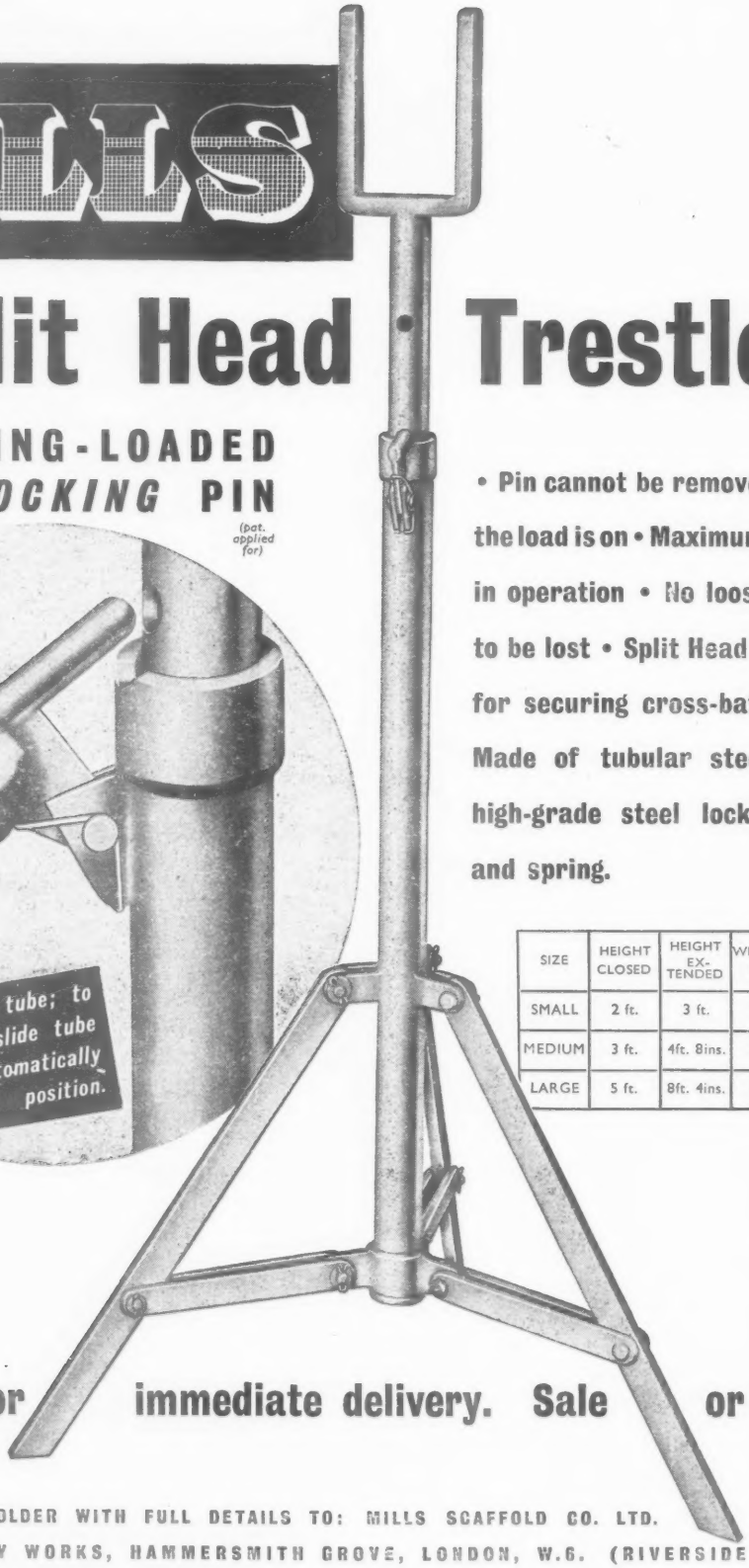

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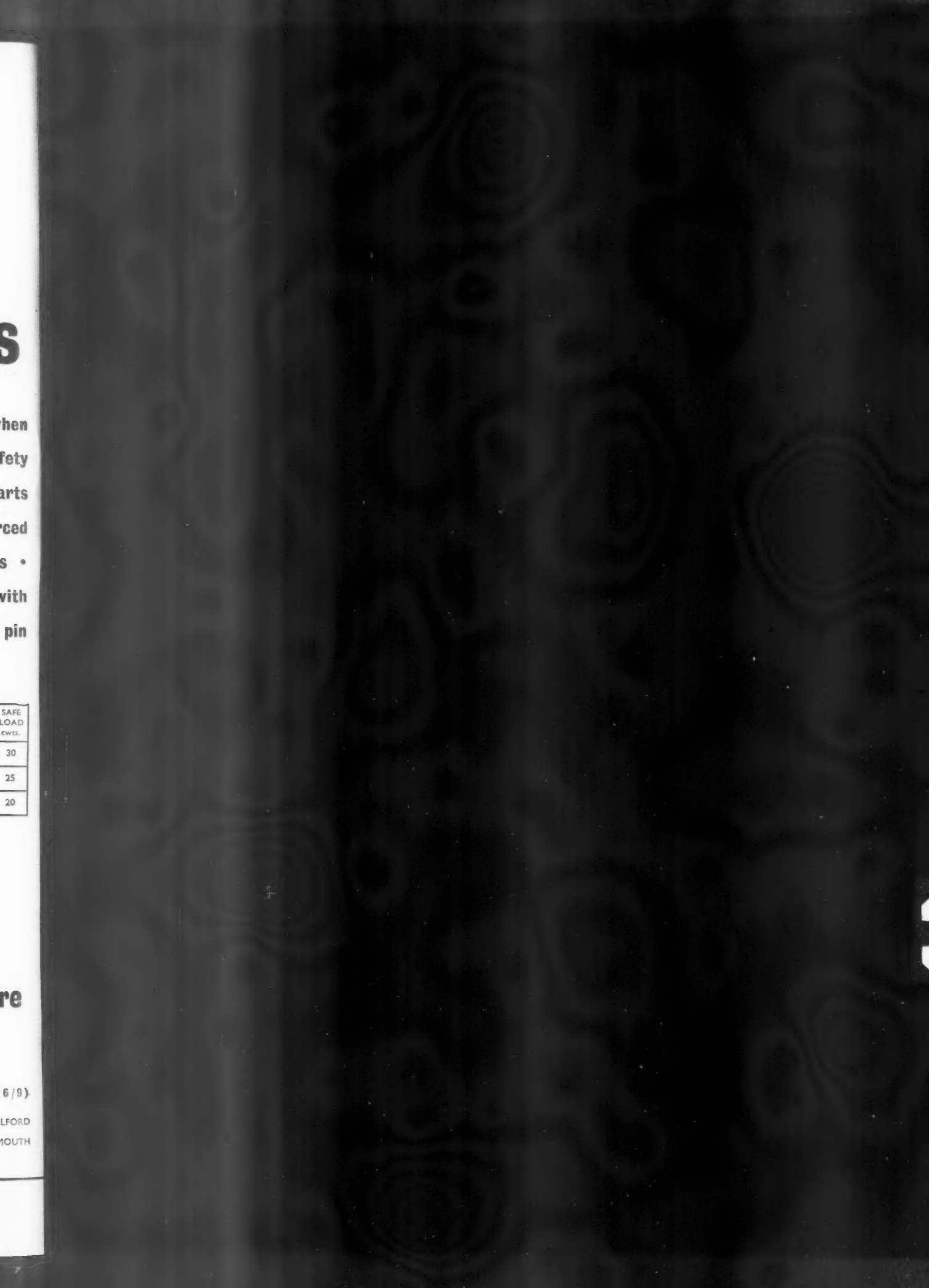
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